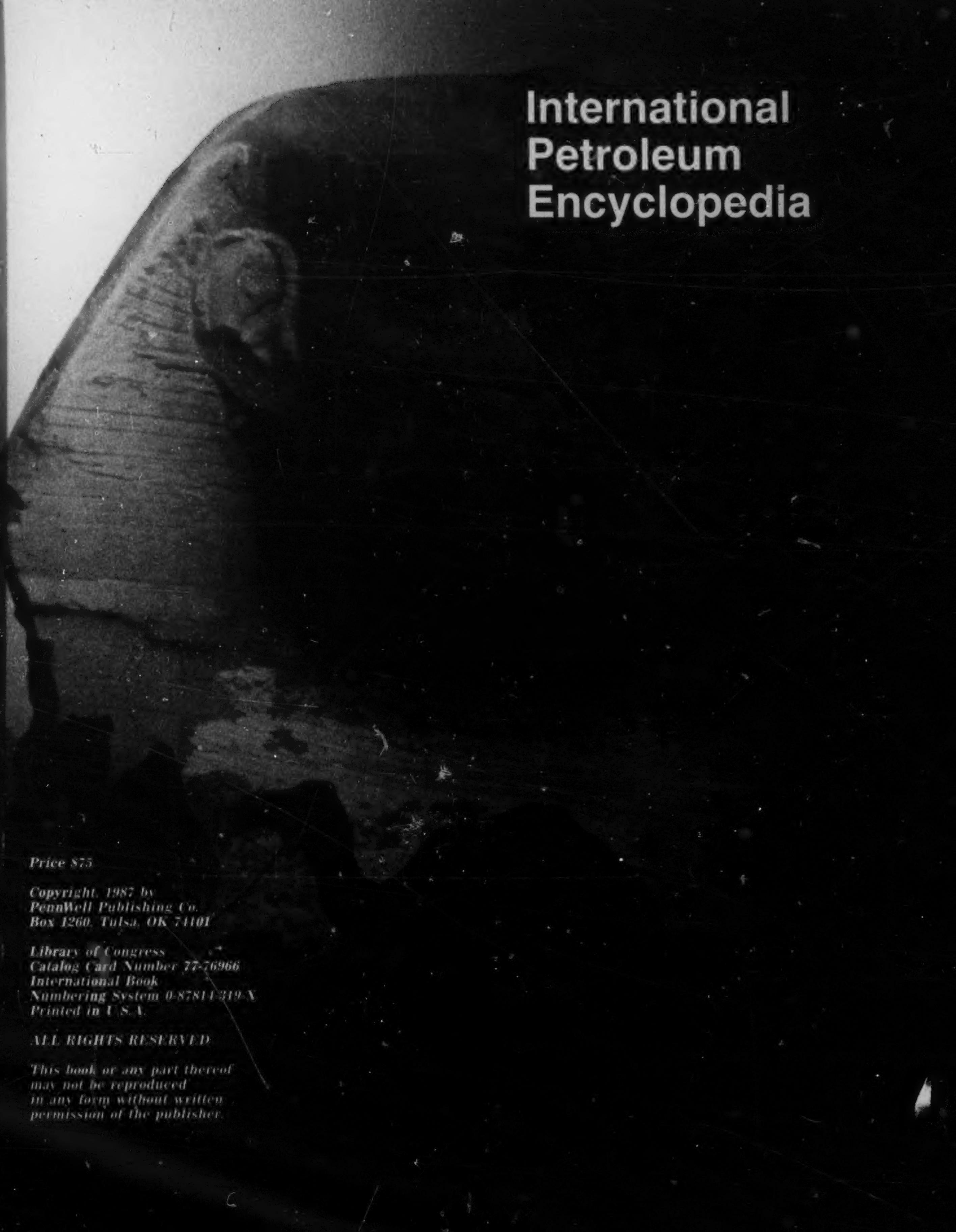

International
Petroleum
Encyclopedia

Price $75

Copyright, 1987 by
PennWell Publishing Co.
Box 1260, Tulsa, OK 74101

Library of Congress
Catalog Card Number 77-76966
International Book
Numbering System 0-87814-319-X
Printed in U.S.A.

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INTERNATIONAL PETROLEUM ENCYCLOPEDIA

The fabulous North Sea 5

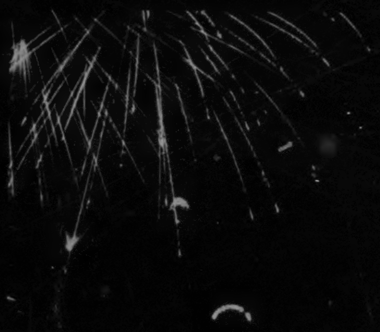

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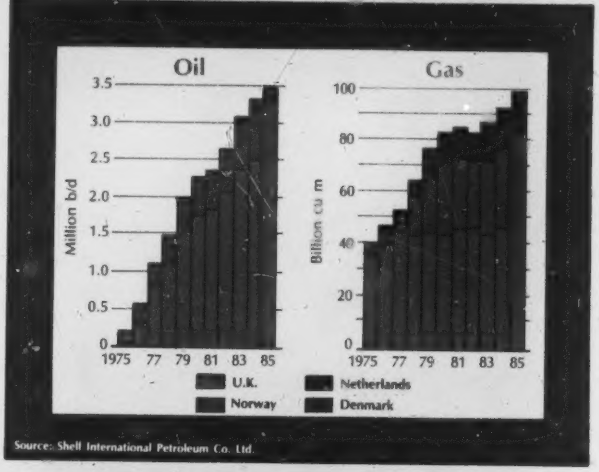
Table 1
Outlook for drilling off Northwest Europe*

	1986	1987	1988	1989	1990	1991
	Rig-years					
ACTIVITY						
Denmark	1.5	1.5	1.5	1.0	0.5	0.5
Ireland	1.0	1.0	1.0	1.0	0.5	0.5
France	—	—	—	—	—	—
West Germany	—	—	—	—	—	—
Netherlands	8.0	7.0	6.5	6.5	6.0	5.5
Norway	8.5	7.5	7.5	7.0	6.5	6.5
U.K.	25.0	24.0	23.5	22.5	20.5	20.0
Total	**44.0**	**41.0**	**40.0**	**38.0**	**34.0**	**33.0**
SUPPLY/DEMAND						
Semisubmersibles						
Exploration/ appraisal	24.0	21.0	20.0	19.0	17.0	17.0
Development	7.5	5.0	4.5	4.5	4.0	4.5
Production	3.0	3.0	3.0	4.0	4.0	4.0
Accommodation	6.0	4.0	4.5	4.0	2.0	2.0
Total	**40.5**	**33.0**	**32.0**	**31.5**	**27.0**	**27.5**
Rigs available	66.5	67.0	65.0	63.0	61.0	59.0
Surplus	26.0	34.0	33.0	31.5	34.0	31.5
Jack ups						
Exploration/ appraisal	20.0	20.0	20.0	19.0	17.0	16.0
Development	14.0	14.0	14.0	13.0	12.0	11.0
Accommodation	1.0	1.0	1.0	1.0	1.0	1.0
Total	**35.0**	**35.0**	**35.0**	**33.0**	**30.0**	**28.0**
Rigs available	50.0	51.0	50.0	48.0	46.0	45.0
Surplus	15.0	16.0	15.0	15.0	16.0	17.0

*One rig-year is assumed for units in dock for upgrading and maintenance.

Source: Wood Mackenzie

How North Sea production buildup 1



Source: Shell International Petroleum Co. Ltd.

North Sea operations increase 2

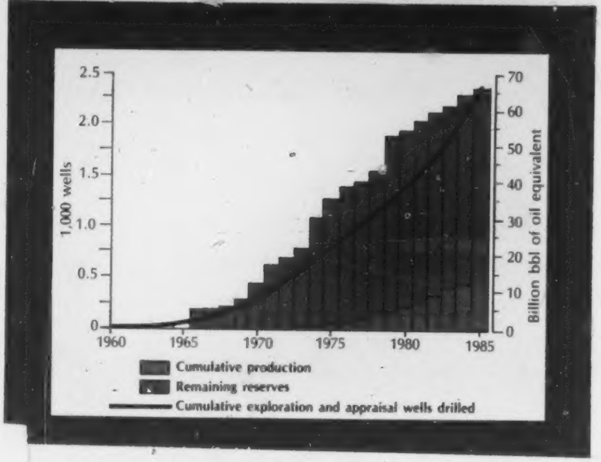


Table 2

North Sea spending expectations*

	Million 1984 £			
	1981-85	1986-90	1991-95	1986-95
Volatile price case				
Exploration	2,220	1,235	1,986	3,221
Development	7,979	4,629	6,591	11,220
Production	528	533	687	1,220
General services	4,771	4,079	5,417	9,496
Total	**15,498**	**10,476**	**14,681**	**25,157**
$25/bbl by 1990 case				
Exploration	2,220	1,517	1,784	3,301
Development	7,979	6,440	5,873	12,313
Production	528	537	767	1,304
General Services	4,771	4,293	5,825	10,118
Total	**15,498**	**12,787**	**14,249**	**27,036**

*Figures represent oil company external expenditures, including operating expenses. External expenditures in 1984 accounted for 58% of total expenditures.

Source: Royal Bank of Scotland

Table 3

Marginal cost of U.K. oil production

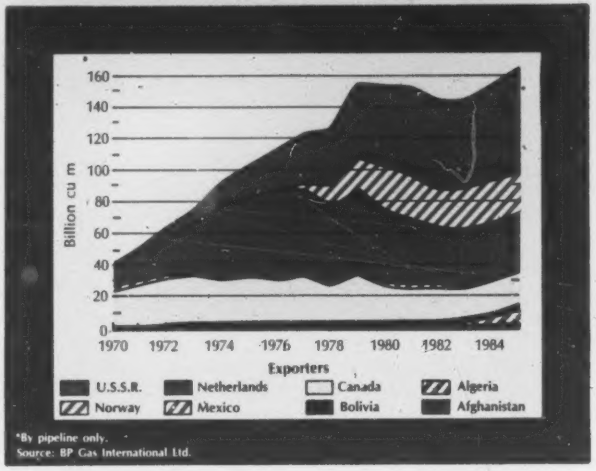
Field	Required price ($/bbl)	Production forecast* (b/d)
Auk	14.30	10,000
Montrose	12.18	12,000
Innes	11.50	5,000
Tartan	11.23	22,000
Duncan	11.21	11,000
Argyll	10.96	7,000
Heather	10.92	16,000
Deveron	9.60	6,000
Buchan	7.88	20,000
Highlander	7.62	19,000
Northwest Hutton	6.40	48,000
Thistle	6.31	60,000
Dunlin	6.06	45,000
Beryl	6.01	110,000
Beatrice	5.47	42,000
Brae	5.05	85,000
Murchison	4.47	65,000
Ninian	4.37	195,000
Scapa	4.10	10,000
Hutton	3.98	75,000
Maureen	3.82	68,000
Statfjord	3.77	86,000
Cormorant area	3.64	180,000
Claymore	3.60	70,000
Piper	2.65	180,000
Brent	2.39	480,000
Magnus	2.39	130,000
Fulmar	1.97	140,000
Forties	1.46	295,000

*Estimated 1986 production.

Source: Wood Mackenzie

International gas shipments*

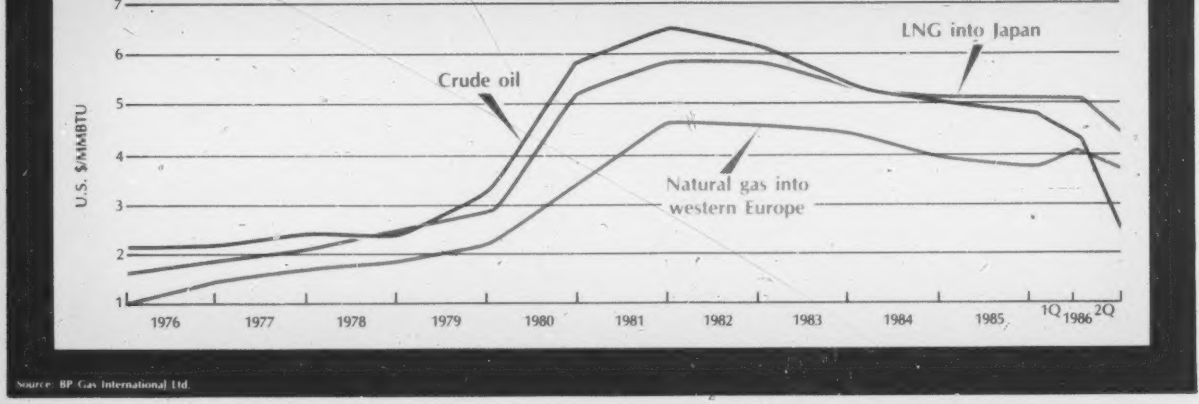
4



*By pipeline only.
Source: BP Gas International Ltd.

How international energy prices have changed

5



Source: BP Gas International Ltd.

Scapa, Claymore facilities 6

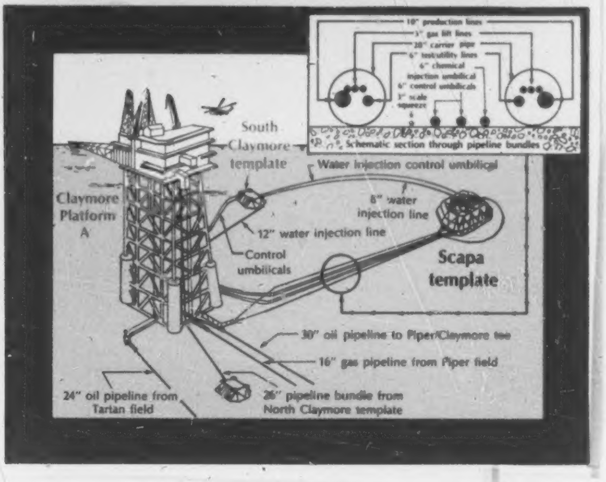

10" production lines
3" gas lift lines
20" carrier pipe
6" test/utility lines
6" chemical injection umbilical
6" control umbilicals
3" scale squeeze
Schematic section through pipeline bundles
South Claymore template
Water injection control umbilical
Claymore Platform A
8" water injection line
12" water injection line
Control umbilicals
Scapa template
30" oil pipeline to Piper/Claymore tee
16" gas pipeline from Piper field
24" oil pipeline from Tartan field
26" pipeline bundle from North Claymore template

Table 4

Breakout of U.K. oil reserves at yearend 1985

	Proved		Probable		Possible		Maximum*	
	1985	1984	1985	1984	1985	1984	1985	1984
	Million metric tons†							
INITIALLY RECOVERABLE								
Fields on production or under development	1,540	1,450	250	225	250	250	2,040	1,925
Other significant finds not fully appraised	40	50	230	275	400	400	670	725
Total in present discoveries	**1,580**	**1,500**	**480**	**500**	**650**	**650**	**2,710**	**2,650**
REMAINING RECOVERABLE								
Cumulative production	825	698						
Total remaining in present discoveries	**750**	**800**	**480**	**500**	**650**	**650**	**1,880**	**1,950**

*Proved, probable, and possible. †Rounded to the nearest 10 million tons for 1985 and to the nearest 25 million tons for 1984.

Source: U.K. Department of Energy

Zeepipe project

15

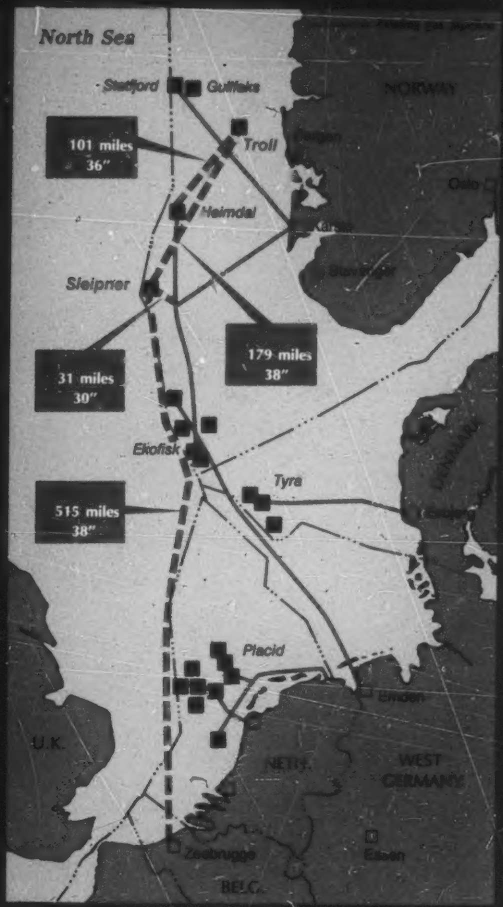

North Sea
Existing gas pipeline
Statfjord
Gullfaks
NORWAY
101 miles
36"
Troll
Bergen
Oslo
Heimdal
Karsto
Stavanger
Sleipner
179 miles
38"
31 miles
30"
Ekofisk
DENMARK
Tyra
Esbjerg
515 miles
38"
Placid
Emden
U.K.
NETH.
WEST GERMANY
Zeebrugge
Essen
BELG.

Table 5

Breakout of U.K. gas reserves at yearend 1985

	Proved	Probable	Possible	Maximum*
	Billion cu m			
INITIALLY RECOVERABLE				
Dry gas fields				
On production or under development				
Southern basin	756	34	26	816
Other areas	162	65	31	258
Subtotal	**918**	**99**	**57**	**1,074**
Other significant finds not fully appraised				
Southern basin	99	221	241	561
Other areas	—	—	62	62
Subtotal	**99**	**221**	**303**	**623**
Total dry gas	**1,017**	**320**	**360**	**1,697**
Gas from gas/condensate fields				
On production or under development	40	8	14	62
Other significant finds not fully appraised	—	212	323	535
Total gas from gas/condensate fields	**40**	**220**	**337**	**597**
Associated gas from oil fields				
On production or under development				
Currently delivered to shore	107	6	3	116
Expected to be connected	20	14	11	45
Other significant finds not fully appraised	—	34	62	96
Total associated gas	**127**	**54**	**76**	**257**
Total initially recoverable reserves in present discoveries	**1,184**	**594**	**773**	**2,551**
REMAINING RECOVERABLE				
Production to yearend 1985				
Dry gas				
Southern basin	469			
Other areas	46			
Associated gas	21			
Total production	**536**			
Total remaining reserves in present discoveries	**648**	**594**	**773**	**2,015**

*Proved, probable, and possible.

Source: U.K. Department of Energy

Table 1

Effect of 1986 level of drilling on U.S. oil reserves and production

RESERVES

Region	*1985	1986	1990	1995
	Billion bbl			
Alaska	7.056	7.06	7.06	7.05
California	5.801	5.82	5.83	5.70
Rocky Mts. and N. Great Plains	2.014	1.93	1.64	1.43
West Texas and E. New Mexico	6.454	6.21	5.32	4.45
Gulf Coast	5.012	4.71	3.75	3.24
Midcontinent	1.503	1.37	0.98	0.79
Eastern interior	0.218	0.21	0.17	0.14
Michigan basin	0.191	0.18	0.15	0.15
Appalachian basin	0.167	0.19	0.23	0.25
Total	**28.416**	**27.68**	**25.13**	**23.20**

PRODUCTION†

	1985	1986	1990	1995	2000
	Billion bbl				
Alaska	0.667	0.670	0.670	0.680	0.680
California	0.417	0.420	0.440	0.480	0.520
Rocky Mts. and N. Great Plains	0.255	0.250	0.230	0.200	0.180
West Texas and E. New Mexico	0.620	0.620	0.590	0.530	0.480
Gulf Coast	0.786	0.780	0.650	0.550	0.510
Midcontinent	0.223	0.220	0.160	0.120	0.100
Eastern interior	0.034	0.030	0.030	0.020	0.020
Michigan basin	0.030	0.030	0.030	0.020	0.020
Applachian basin	0.020	0.020	0.020	0.010	0.010
Total	**3.052**	**3.040**	**2.820**	**2.610**	**2.520**

*Estimated by Energy Information Administration. †Assumes an active exploration campaign in Alaska and California.

Source: Congressional Research Service

Table 2

Unemployed petroleum geologists

	Percent	Calculated number unemployed
METROPOLITAN AREAS*		
Dallas-Fort Worth	24	287
Denver	34	817
Houston	22	823
Los Angeles	11	91
Midland, Tex.	28	317
New Orleans	15	143
Oklahoma City	39	311
Tulsa	27	180
OTHER CITIES†		
Amarillo	17	26
Anchorage	20	26
Austin	18	25
Bakersfield, Calif.	24	52
Billings, Mont.	44	51
Casper, Wyo.	45	127
Corpus Christi	33	89
Jackson, Miss.	40	51
Lafayette, La.	33	140
San Antonio	30	77
Shreveport, La.	39	90
Wichita, Kan.	15	25

*Cities and suburbs from which 50 or more survey responses were received. †Cities and metropolitan areas from which at least 10 but less than 50 survey responses were received.

Source: American Association of Petroleum Geologists

Table 3

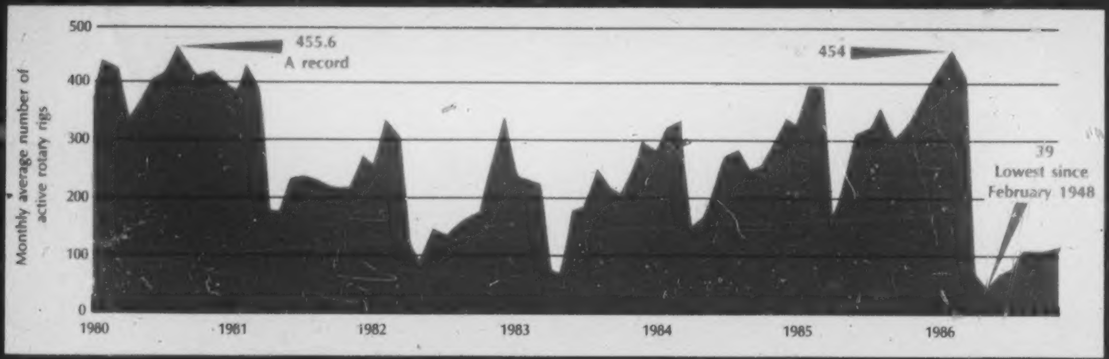
AGA's view of the gas surplus

	Production	Spare productive capacity
	tcf	
1979	19.663	0
1980	19.403	0.603
1981	19.181	1.317
1982	17.758	2.761
1983	16.033	4.572
1984	17.392	3.381
1985	16.379	3.644
1986	16.844	2.608
1987	17.230	1.680
1988	17.427	0.947
1989	17.638	0.242
1990	17.254	0.049

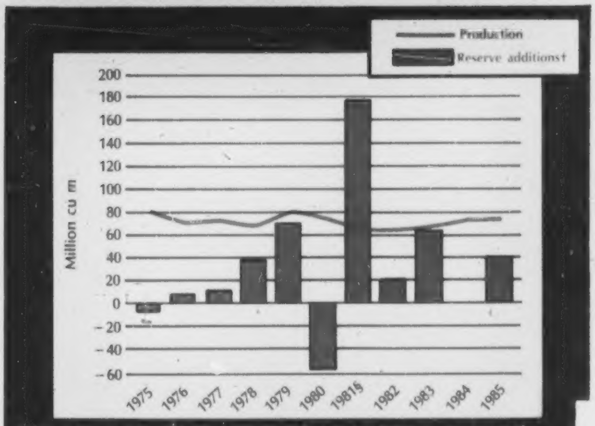
Source: American Gas Association

How Canadian drilling activity nosedived

1



Oil production, reserve additions* 2



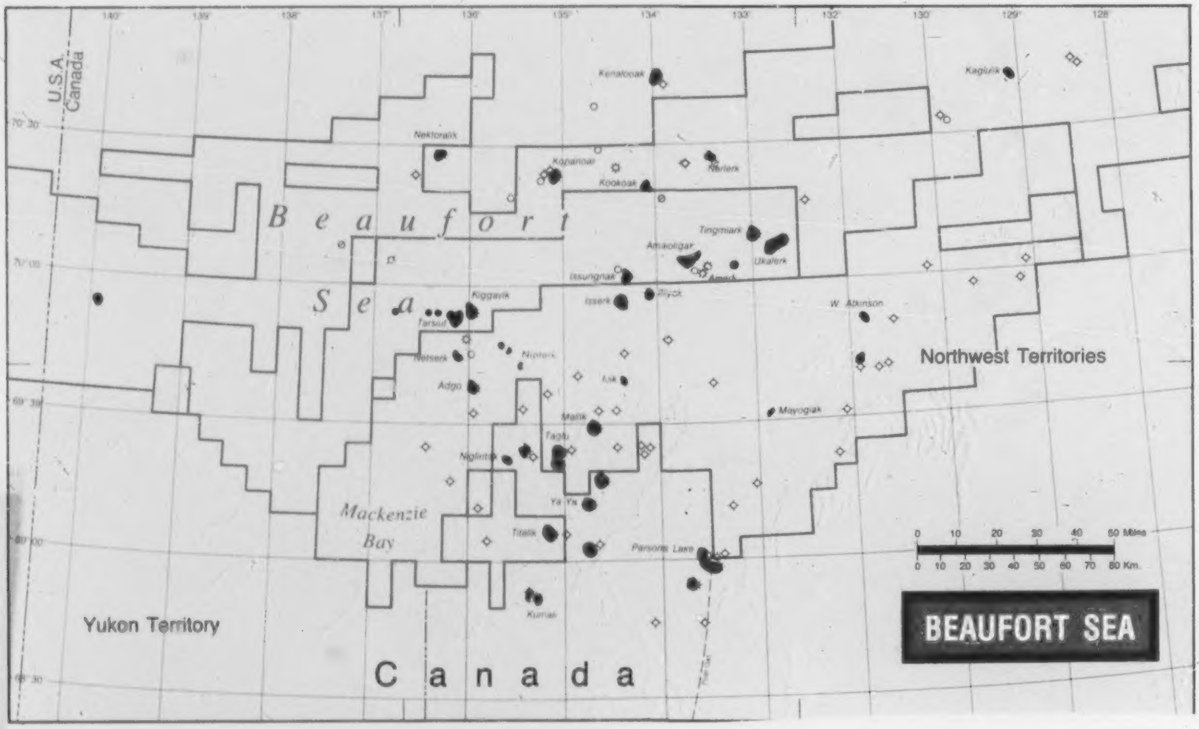
*Conventional crude oil only. †By drilling or revision. §East coast offshore reserves first booked.
Source: Canadian Petroleum Association

Spending by the Canadian industry

	1984	1985	Percent change	Percent of total 1984	Percent of total 1985
	— Billion $ —				
Upstream					
Exploration	5.0	4.9	− 1	48	41
Development	1.1	1.5	+35	11	13
Production	1.3	1.7	+34	12	14
Nonconventional*	0.6	1.1	+93	6	9
Total upstream†	**8.0**	**9.3**	**+16**	**76**	**77**
Downstream	1.1	0.9	−11	10	8
Energy mining	0.2	0.2	—	2	2
All other	0.6	0.5	−14	6	4
Total Canadian	**9.8**	**10.9**	**+11**	**94**	**91**
Foreign spending	0.7	1.1	+60	6	9
Total	**10.5**	**12.0**	**+15**	**100**	**100**

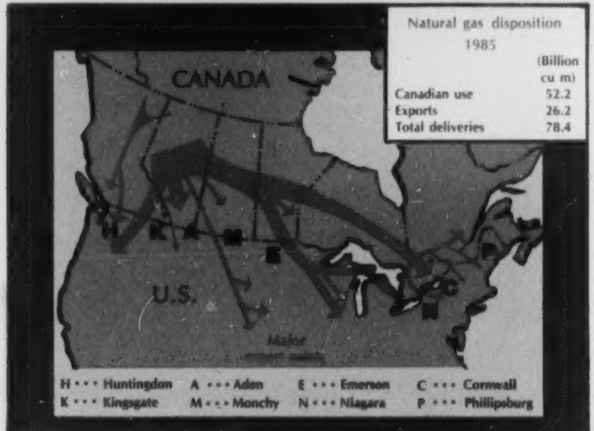
*Includes oil sands and nonconventional heavy oil projects. †Includes incentive payments from government.

Source: Petroleum Monitoring Agency


U.S.A.
Canada
Beaufort Sea
Mackenzie Bay
Yukon Territory
Northwest Territories
Canada
Kenalooak
Kaglulik
Nektoralik
Koponoar
Kookoak
Nerlerk
Tingmiark
Amauligak
Ukalerk
Amerk
Issungnak
Isserk
Itiyok
Kiggavik
Tarsiut
Netserk
Adgo
W. Atkinson
Mayogiak
Mallik
Taglu
Niglintgak
Ya Ya
Titalik
Parsons Lake
Kumak
0 10 20 30 40 50 Miles
0 10 20 30 40 50 60 70 80 Km.
BEAUFORT SEA

Canadian gas exports to the U.S.*

4

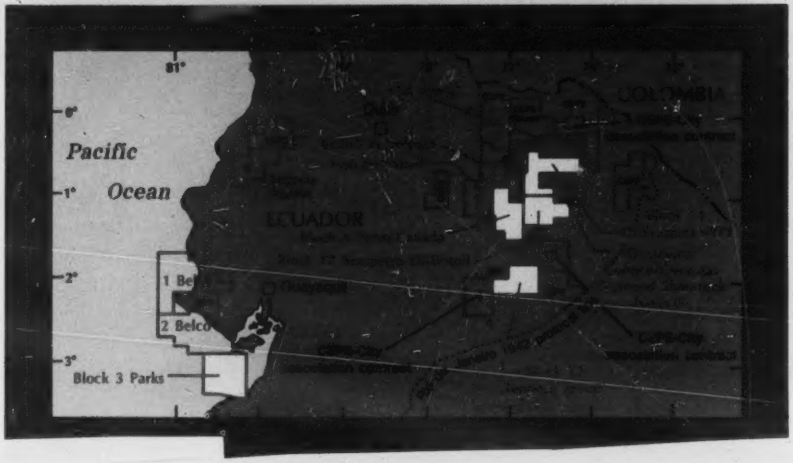

CANADA
U.S.
H
K
A
M
E
N
C
P
Major
H • • • Huntingdon
K • • • Kingsgate
A • • • Aden
M • • • Monchy
E • • • Emerson
N • • • Niagara
C • • • Cornwall
P • • • Phillipsburg

Natural gas disposition
1985

	(Billion cu m)
Canadian use	52.2
Exports	26.2
Total deliveries	78.4

*Width of arrow is proportional to volume.
Source: National Energy Board

Where the new acreage is in Ecuador


81°
0°
1°
2°
3°
Pacific
Ocean
1 Belco
2 Belco
Block 3 Parks
ECUADOR
COLOMBIA
Guayaquil

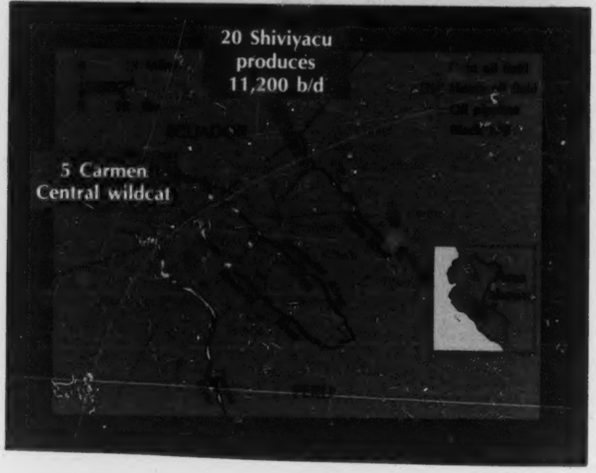
1986-90 exploration programs in Ecuador*

Block	Company	Areal extent (Sq miles)	Region	Seismic (Line miles)	Wildcats	Spending (Million $)
1	Belco	1,544	Offshore	1,863	4	8.8
2	Belco	1,544	Offshore	1,863	8	15.3
6	Texaco-Pecten	772	Coast	745	3	23.4
7	BP	772	Oriente	683	4	30.0
8	Esso-Hispanoil	772	Oriente	621	2	30.0
15	Occidental	772	Oriente	869	4	34.3
16	Conoco group	772	Oriente	932	6	44.0
	Total	**6,948**		**7,576**	**31**	**185.8**

*Excluding CEPE-Texaco and CEPE.

Source: Corp. Estatal Petrolera Ecuatoriana

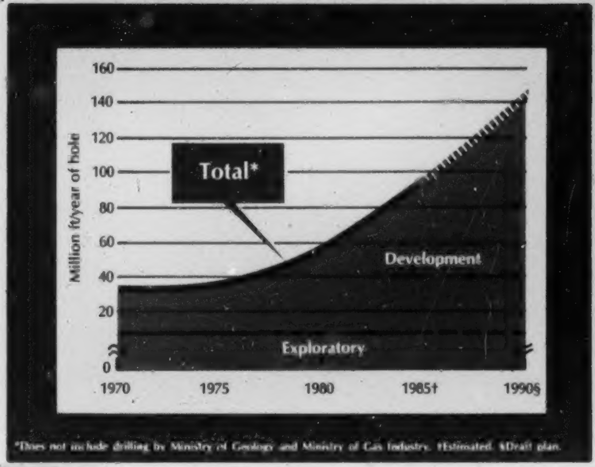
Oxy's drilling on Block 1AB in Peru


20 Shiviyacu
produces
11,200 b/d
5 Carmen
Central wildcat
ECUADOR
PERU

Petroperu's 1986 budget for exploration/development

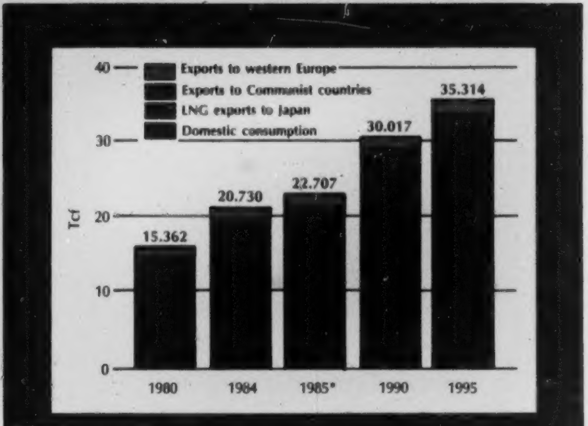
Onshore	Exploration	Development
	Million $	
Northwest coast	4.32	44.73
Northern jungle	24.90	28.10
Central jungle	32.28	35.95
Total: $170.28	**61.50**	**108.78**

Soviet Oil Ministry's drilling program



*Does not include drilling by Ministry of Geology and Ministry of Gas Industry. †Estimated. §Draft plan.

Soviet gas flow, export outlook



*Estimated.

Source: Ruhrgas AG.

Soviet exports

	Oil	
	1985	1984
	Million $	
NON-COMMUNIST		
West Germany	2,494	2,922
Finland	1,944	2,125
Italy	1,872	2,371
France	1,517	2,051
Netherlands	1,042	1,748
India	1,014	1,248
Belgium	592	950
Greece	581	522
U.K.	422	568
Sweden	376	472
West Berlin	273	345
Switzerland	273	462
Denmark	269	349
Spain	188	287
Austria	186	268
Japan	150	161
Nicaragua	124	58
Morocco	108	108
Iran	93	2
Brazil	72	100
U.S.	8	11
Other	542	522
Subtotal	**14,140**	**17,650**
COMMUNIST		
East Germany	3,634	3,656
Czechoslovakia	3,421	3,214
Poland	3,105	2,948
Bulgaria	2,587	2,365
Hungary	1,727	1,633
Cuba	1,457	1,550
Yugoslavia	1,280	1,685
Viet Nam	463	445
Romania	455	332
Mongolia	208	185
North Korea	142	122
Afghanistan	139	140
Other	222	222
Subtotal	**18,840**	**18,497**
Total	**32,980**	**36,147**
	Gas	
NON-COMMUNIST		
West Germany	1,614	1,476
France	816	594
Italy	726	1,025
Austria	547	465
Finland	99	94
Other	22	10
Subtotal	**3,824**	**3,664**
COMMUNIST		
Czechoslovakia	1,316	1,289
East Germany	875	845
Poland	849	826
Bulgaria	765	752
Hungary	559	526
Yugoslavia	558	569
Romania	257	261
Subtotal	**5,179**	**5,068**
Total	**9,003**	**8,732**

Table 1

How OGJ sees world oil demand, production

	1983	1984	1985	1986	1987	1988	1989	1990	1991	Change, 1986 to 1991	% change, 1986 to 1991
					1,000 b/d						
Oil demand (Total liquids)											
Non-Communist	44,975	45,895	45,620	46,350	47,410	48,315	49,150	50,000	51,100	+47,500	+10.2
Communist	13,230	13,140	13,370	13,500	13,715	13,935	14,145	14,370	14,595	+1,095	+ 8.1
Total world	**58,205**	**59,035**	**58,990**	**59,850**	**61,125**	**62,250**	**63,295**	**64,370**	**65,695**	**+5,845**	**+ 9.8**
Oil production (Total liquids)											
OPEC	18,245	18,470	17,225	19,100	19,810	20,890	21,800	22,725	23,950	+4,850	+25.4
Non-OPEC	23,115	24,400	24,990	24,925	24,850	24,775	24,700	24,625	24,550	−375	− 1.5
Total non-Communist	**41,540**	**42,870**	**42,215**	**44,025**	**44,660**	**45,665**	**46,500**	**47,350**	**48,500**	**+4,475**	**+10.2**
Communist	15,145	15,235	15,125	15,425	15,465	15,535	15,695	15,920	16,095	+ 670	+ 4.3
Total world	**56,685**	**58,105**	**57,340**	**59,450**	**60,125**	**61,200**	**62,195**	**63,270**	**64,595**	**+5,145**	**+ 8.7**
Other supply											
Processing gain	1,000	1,000	1,000	1,000	1,000	1,050	1,100	1,100	1,100	+ 100	+10.0
Stock change	− 520	+ 70	− 650	+ 600	—	—	—	—	—	—	—
Communist net exports	1,915	2,095	1,755	1,900	1,750	1,600	1,550	1,550	1,500	−400	−21.1
OPEC crude oil	17,580	17,575	16,060	17,910	18,610	19,680	20,550	21,450	22,650	+4,740	+26.5
Crude oil price, $/bbl (Average world export price)	30.80	28.50	27.70	14.00	16.00	17.00	18.00	20.00	22.00	+ 8.00	+57.1

Source: BP Statistical Review, International Energy Agency, Energy Information Administration, Oil & Gas Journal. 1986-91 projections by Oil & Gas Journal.

OGJ's forecast of U.S. supply, demand

Table 2

	1983	1984	1985	1986	1987	1988	1989	1990	1991	Change, 1986 to 1991	% change, 1986 to 1991
	1,000 b/d										
Demand											
Domestic demand	15,231	15,726	15,726	16,190	16,515	16,720	16,895	17,100	17,300	+1,110	+ 6.9
Exports	739	722	781	780	725	730	735	740	750	− 30	− 3.8
Total demand	**15,970**	**16,448**	**16,507**	**16,970**	**17,240**	**17,450**	**17,630**	**17,840**	**18,050**	**+1,080**	**+ 8.4**
Supply											
Crude production	8,688	8,879	8,971	8,790	8,350	8,020	7,830	7,660	7,510	−1,280	− 14.6
NGL & other	1,611	1,675	1,665	1,675	1,670	1,660	1,640	1,640	1,630	− 45	− 2.7
Total liquids	**10,299**	**10,554**	**10,636**	**10,465**	**10,020**	**9,680**	**9,470**	**9,300**	**9,140**	**−1,325**	**− 12.7**
Crude imports (less SPR)	3,096	3,229	3,083	3,790	4,570	5,085	5,445	5,790	6,100	+2,310	+ 60.9
Product imports	1,722	2,011	1,866	1,940	1,980	2,005	2,025	2,050	2,070	+ 130	+ 6.7
Total imports	**4,818**	**5,240**	**4,949**	**5,730**	**6,550**	**7,090**	**7,470**	**7,840**	**8,170**	**+ 2,440**	**+42.6**
Other supply	686	736	706	735	750	760	770	780	790	+ 55	+ 7.5
Total supply	**15,803**	**16,530**	**16,291**	**16,930**	**17,320**	**17,530**	**17,710**	**17,920**	**18,100**	**+1,170**	**+ 6.9**
Stock change	− 167	+ 82	− 216	− 40	+ 80	+ 80	+ 80	+ 80	+ 50	—	—
Net imports as % of domestic demand	26.8	28.7	26.5	30.6	35.3	38.0	39.9	41.5	42.9	—	—
Crude oil prices, $/bbl (Average wellhead price)	26.19	25.88	24.08	13.50	15.50	16.50	17.50	19.50	21.50	+ 8.00	+ 59.3

Source: Energy Information Administration. 1986-91 estimates by Oil & Gas Journal.

Table 3

OGJ's U.S. capital expenditures forecast

($ Million)

	1986	1987	1988	1989	1990	1991	Change, 1986 to 1991	% change, 1986 to 1991
Exploration & drilling	13,510	14,450	15,380	17,230	21,750	23,980	+ 10,470	+77.5
Production	2,650	2,840	3,020	3,380	4,270	4,710	+2,060	+ 77.7
OCS lease bonus	1,090	1,240	1,320	1,400	1.540	1,700	+ 610	+ 56.0
Subtotal	**17,250**	**18,530**	**19,720**	**22,010**	**27,560**	**30,390**	**+ 13,140**	**+ 76.2**
Refining & petrochemicals	3,140	3,340	3,460	3,610	3,900	4,100	+ 960	+ 30.6
Marketing	2,130	2,300	2,380	2,460	2,610	2,760	+ 630	+ 29.6
Pipeline and transportation	1,840	1,920	1,990	2,120	2,400	2,540	+ 700	+ 38.0
Mining and other	3,060	3,250	3,350	3,450	3,610	3,760	+ 700	+ 22.9
Subtotal	**10,170**	**10,810**	**11,160**	**11,640**	**12,520**	**13,160**	**+ 2,990**	**+ 29.4**
Total spending	**27,420**	**29,340**	**30,900**	**33,650**	**40,080**	**43,550**	**+ 16,130**	**+ 58.8**

Table 4

U.S. exploration and drilling outlook

	1983	1984	1985	1986	1987	1988	1989	1990	1991	Change, 1986 to 1991	% change, 1986 to 1991
Drilling activity											
Active rotary rigs	2,232	2,428	1,980	975	1,045	1,110	1,240	1,565	1,725	+750	+76.9
Well completions	75,738	85,359	74,919	46,400	47,950	49,900	54,550	64,100	66,250	+19,850	+42.8
Footage drilled, 1,000	316,617	368,336	319,993	199,500	210,900	224,600	248,800	294,800	308,000	+108,500	+54.4
Average well depth, ft	4,180	4,315	4,271	4,300	4,400	4,500	4,550	4,600	4,650	+350	+8.1
Revenue and expenditure, $ million											
Wellhead revenues	113,924	124,174	118,440	74,625	78,395	80,075	81,205	86,395	91,475	+16,850	+22.6
Drilling expenditures	25,105	25,206	20,672	12.040	12,880	13,710	15,360	19,380	21,370	+9,330	+77.5
% of revenue invested in drilling	22.0	20.3	17.5	16.1	16.4	17.1	18.9	22.4	23.4	—	—

Source: Hughes Tool Co., American Petroleum Institute. 1986-91 projections by Oil & Gas Journal.

Rank by total assets 1985	Rank by total assets 1984	Company	Total assets $000	Total revenue Rank	Total revenue $000	Net income Rank	Net income $000	Stockholders' equity Rank	Stockholders' equity $000	Capital & Expl. spending Rank	Capital & Expl. spending $000
1	1	**Exxon Corp.**	69,160,000	1	92,869,000	1	4,870,000	1	29.096,000	1	10,339,000
2	2	**Mobil Corp.**	41,752,000	2	60,609,000	6	1,040,000	4	14,089,000	6	3,513,000
3	4	**Chevron Corp.**	38,899,000	4	45,325,000	4	1,547,000	2	15,554,000	4	4,035,000
4	3	**Texaco Inc.**	37,703,000	3	47,514,000	5	1,233,000	5	13,628,000	7	2,824,000
5	6	**Shell Oil Co.**	26,528,000	7	20,477,000	3	1,650,000	3	14,129,000	3	4,080,000
6	5	**Amoco Corp.**	25,198,000	5	28,873,000	2	1,953,000	6	11,588,000	2	5,306,000
7	8	**Tenneco Inc.**	20,437,000	10	15,332,000	16	172,000	8	5,903,000	11	1,719,000
8	7	**Atlantic Richfield Co.**	20,279,000	6	23,080,000	393	(202,000)	9	5,506,000	5	3,595,000
9	9	**Standard Oil Co.**	18,330,000	13	13,915,000	13	308,000	7	8,018,000	8	2,477,000
10	10	**Phillips Petroleum Co.**	14,045,000	8	15,800,000	11	418,000	18	1,644,000	15	1,060,000
11	11	**Sun Co. Inc.**	12,923,000	11	15,076,000	10	527,000	10	5,289,000	10	1,748,000
12	12	**Occidental Petroleum Corp.**	11,585,868	9	15,643,914	8	696,003	11	3,281,021	14	1,151,733
13	13	**Unocal Corp.**	10,797,000	14	11,641,000	12	325,000	19	1,630,000	9	1,847,400
14	14	**Marathon Oil Co.**[1]	10,074,000	15	10,462,000	7	[2]804,000	—	NA	13	1,165,000
15	15	**Conoco Corp.**[3]	9,902,000	12	14,846,000	9	[4]572,000	—	NA	12	1,402,000
16	17	**Enron Corp.**[5]	9,892,727	16	10,271,262	350	(14,055)	17	1,650,345	20	591,224
17	35	**Coastal Corp.**	8,294,300	19	7,310,700	22	142,400	34	772,000	36	341,300
18	16	**Amerada Hess Corp.**	6,219,453	18	7,722,542	396	(260,409)	12	2,260,590	17	929,035
19	21	**Columbia Gas System Inc.**	5,835,166	23	4,141,830	389	(93,832)	23	1,422,688	45	219,968
20	32	**MidCon Corp.**[7]	5,809,878	24	4,132,976	33	70,004	27	1,127,496	35	345,869
21	18	**Texas Eastern Corp.**	5,391,732	20	5,489,211	46	40,007	22	1,460,144	29	398,538
22	20	**Panhandle Eastern Corp.**	5,025,578	31	2,959,483	25	124,986	16	1,695,925	43	237,012
23	19	**Diamond Shamrock Corp.**	4,618,000	22	4,183,000	397	(604,700)	14	1,733,000	19	679,900
24	22	**Williams Cos.**[8]	4,337,400	30	3,139,600	53	31,600	26	1,212,800	41	259,000
25	29	**Transco Energy Co.**[9]	4,241,056	26	3,739,157	62	25,661	37	720,394	25	479,695
26	23	**Pacific Lighting Corp.**	4,132,577	21	5,147.046	20	155,992	20	1,538,089	24	527,114
27	24	**Ashland Oil Inc.**[7]	3,927,633	17	8,237,939	21	146,722	32	929,411	37	329,096
28	33	**Texas Oil & Gas Corp.**[10,11]	3,818,148	43	1,709,741	14	276,761	13	1,748,787	18	739,418
29	31	**Consolidated Natural Gas Co.**	3,797,759	29	3,294,717	15	212,429	21	1,523,614	23	527,754
30	28	**Kerr-McGee Corp.**	3,702,000	28	3,345,000	23	137,000	15	1,722,000	26	454,000
31	30	**Sonat Inc.**	3,569,585	33	2,550,883	113	3,044	25	1,360,744	22	555,405
32	34	**Enserch Corp.**	3,357,844	27	3,391,035	374	(38,956)	29	1,028,002	27	415,094
33	36	**Pennzoil Co.**	3,299,556	37	2,238,712	28	113,204	35	752,849	21	590,432
34	37	**Champlin Petroleum Co.**[12]	2,982,000	25	3,765,000	24	129,000	31	952,000	33	359,000
35	39	**Murphy Oil Corp.**	2,660,825	38	2,222,343	32	79,704	30	1,014,391	30	397,408
36	47	**Meridian Oil Inc.**[13]	2,188,770	67	414,536	36	59,835	24	1,366,775	38	319,440
37	43	**Mitchell Energy & Development Corp.**[14]	2,060,466	53	914,639	49	35,684	45	541,683	42	251,957
38	44	**Freeport-McMoRan Inc.**	2,058,988	57	722,160	29	111,456	38	718,224	48	207,475
39	41	**Nicor Inc.**	2,037,288	39	2,128,799	391	(152,059)	59	371,245	50	182,048
40	42	**Valero Energy Corp.**	1,994,879	32	2,720,987	50	34,718	48	482,942	81	59,964
41	38	**Union Texas Petroleum Co.**[16]	1,951,836	40	2,059,936	19	165,101	372	(282,056)	31	384,000
42	26	**Mesa Limited Partnership**[17]	1,838,712	—	NA	—	NA	39	[18]708,057	—	NA
43	50	**American Petrofina Inc.**	1,817,256	34	2,421,645	340	(10,163)	42	624,692	47	214,962
44	48	**Montana Power Co.**	1,743,477	66	425,173	26	121,567	40	676,507	64	95,091
45	51	**Arkla Inc.**	1,689,937	50	1,005,907	34	69,490	49	480,597	68	86,300
46	46	**Mapco Inc.**	1,610,953	41	1,907,670	30	104,065	50	437,691	62	100,465
47	49	**Cabot Corp.**[7]	1,594,712	46	1,409,326	387	(86,375)	41	625,711	51	166,129
48	45	**Global Marine Inc.**[19]	1,573,000	69	389,800	395	(220,000)	69	290,600	99	35,900
49	57	**Transco Exploration Partners Ltd.**[9]	1,562,117	71	364,348	333	(6,185)	28	1,123,484	34	348,804
50	55	**Primark Corp.**	1,557,277	42	1,892,180	38	51,244	52	421,892	76	66,349
51	53	**Ocean Drilling & Exploration Co.**[20]	1,424,635	58	648,404	51	33,694	33	839,502	44	229,707

Worldwide liquids production		Worldwide natural gas production		Worldwide liquids reserves		Worldwide natural gas reserves		U.S. liquids production		U.S. natural gas production		U.S. liquids reserves		U.S. natural gas reserves		U.S. net wells drilled	
Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Wells
1	603.0	1	1,509.0	1	6,733.0	1	29,723.0	1	281.0	2	874.0	2	2,722.0	1	17,962.0	1	1,442.0
7	236.0	2	1,318.0	8	2,366.0	2	20,687.0	8	120.0	5	623.0	8	1,036.0	4	7,600.0	4	981.0
3	367.0	5	910.0	2	3,831.0	4	9,994.0	5	214.0	3	766.0	5	2,088.0	3	7,752.0	7	808.0
2	406.0	4	987.0	3	3,020.0	5	8,716.0	4	233.0	1	876.0	7	1,766.0	8	5,803.0	2	1,246.0
8	198.0	6	609.0	7	2,645.0	6	7,292.0	6	193.0	6	602.0	4	2,528.0	6	7,051.0	5	973.0
4	307.0	3	1,029.0	5	2,769.0	3	15,137.0	7	144.0	4	674.0	6	1,782.0	2	9,902.0	3	1,078.0
16	51.00	9	380.0	16	454.0	11	3,570.0	14	37.00	8	380.0	14	318.0	11	3,564.0	12	354.3
6	260.0	7	525.0	4	2,931.0	8	7,065.0	3	237.0	7	482.0	1	2,746.0	7	6,134.0	9	615.0
5	262.3	32	69.70	6	2,647.8	7	7,219.0	2	262.3	28	69.70	3	2,647.8	5	7,219.0	21	206.5
10	118.0	14	201.0	11	1,063.0	10	4,883.0	10	68.00	9	322.0	12	576.0	10	3,580.0	14	285.0
14	82.00	11	270.0	14	848.0	13	3,174.0	9	71.00	11	239.0	9	699.0	12	2,588.0	8	756.0
11	105.0	12	232.0	12	941.0	16	2,474.0	15	29.00	13	219.0	15	261.0	14	2,264.0	17	257.6
12	101.0	8	405.0	13	887.0	9	6,189.0	11	65.00	10	297.0	10	666.0	9	4,728.0	10	579.0
13	94.78	13	210.9	10	1,072.9	12	3,324.6	12	58.48	17	137.7	11	586.4	17	1,797.0	22	206.0
9	139.0	10	302.0	9	1,363.0	14	2,982.0	13	44.00	12	231.0	13	373.0	15	2,105.0	15	279.2
32	8.022	24	92.55	36	43.70	22	1,449.3	41	3.838	23	85.86	32	37.90	20	1,388.1	41	89.1
43	4.490	25	88.40	41	33.43	24	1,223.8	38	•4.490	85	•8.839	35	•33.43	22	•1,223.8	35	116.0
15	62.00	16	175.0	15	692.0	17	1,882.0	16	26.00	22	89.00	16	213.0	28	855.0	46	66.0
56	2.589	29	76.66	67	14.38	29	905.7	54	2.125	26	74.49	82	8.378	29	751.4	49	61.0
48	3.700	39	51.00	43	30.40	46	511.0	43	3.700	35	51.00	38	30.40	39	511.0	39	94.0
23	17.81	34	63.54	18	166.5	36	655.5	88	0.978	60	16.17	94	6.659	71	156.3	112	17.1
37	5.138	26	84.56	54	21.95	21	1,514.1	35	4.641	24	83.06	49	17.58	19	1,464.5	33	133.0
19	24.33	21	114.7	21	136.6	32	876.1	30	5.631	20	99.78	33	37.27	30	739.3	18	256.8
91	1.046	79	12.19	127	4.252	61	269.2	82	1.046	73	12.19	121	4.252	53	269.2	89	24.6
49	3.479	38	55.77	58	18.08	48	391.7	44	3.479	33	55.77	47	18.08	42	391.7	44	77.7
41	4.828	66	14.02	37	42.57	92	111.1	36	4.618	70	12.56	34	36.97	96	86.28	26	171.0
31	8.600	81	11.70	33	53.70	69	216.3	86	1.000	75	11.70	113	5.000	61	216.3	31	140.0
33	6.987	15	198.5	39	41.22	19	1,836.3	25	6.987	14	198.5	31	41.22	16	1,836.3	6	938.4
39	4.993	17	150.1	48	26.64	26	1,133.0	37	4.550	15	149.9	44	24.09	23	1,132.0	11	521.0
24	17.30	33	65.10	24	120.5	34	826.4	24	7.700	31	61.20	28	45.00	31	668.8	64	41.6
47	3.774	47	36.10	78	10.44	67	229.1	42	3.774	43	36.10	69	10.44	58	229.1	56	45.2
28	10.93	31	71.37	29	68.50	31	880.9	22	10.91	27	71.37	24	63.80	27	880.9	34	129.0
27	12.72	18	149.2	19	158.0	27	1,010.0	20	12.45	16	138.4	18	156.0	24	932.0	32	133.8
18	24.80	20	115.2	17	188.3	18	1,847.2	17	23.90	18	110.4	17	177.7	18	1,693.9	20	226.0
20	20.10	36	61.40	23	127.3	35	678.2	32	5.000	34	53.80	36	33.30	43	370.2	69	35.2
38	5.000	22	107.0	35	50.30	15	2,563.0	31	5.000	19	107.0	27	50.30	13	2,563.0	13	305.1
21	18.30	37	57.60	25	111.3	38	619.3	18	18.30	32	57.60	20	111.3	33	619.3	28	154.5
60	2.400	44	40.60	65	14.80	39	581.8	50	2.300	45	34.40	62	12.60	40	437.2	48	[19]61.4
81	1.300	63	16.50	100	6.900	83	127.3	71	1.300	61	15.00	91	6.900	76	127.3	76	30.5
26	13.00	171	1.800	138	3.300	143	37.10	72	1.300	167	1.800	135	3.300	136	37.10	161	8.1
17	30.00	19	118.0	20	137.0	20	1,696.0	27	6.000	38	46.00	29	43.00	45	363.0	40	91.7
46	4.001	23	96.71	44	28.90	23	1,255.4	40	3.939	21	95.93	39	28.46	21	1,241.7	77	30.1
34	6.770	55	25.44	38	41.72	68	219.1	26	6.770	51	25.44	30	41.72	60	219.1	23	205.2
134	0.421	62	18.23	108	6.020	49	386.5	153	0.283	87	8.577	163	1.765	75	127.8	70	34.3
150	0.306	51	31.52	113	5.470	37	653.0	149	0.306	48	31.52	106	5.470	32	653.0	86	26.9
59	2.430	—	—	73	12.72	316	1.000	58	1.858	—	—	70	10.06	316	1.000	[illegible]	—
76	1.503	46	38.36	77	10.45	44	525.2	65	1.503	42	38.36	68	10.45	37	525.2	[illegible]	197.1
139	0.383	164	1.977	147	2.400	114	69.43	134	0.383	161	1.977	141	2.400	107	69.43	137	10.9
42	4.810	28	77.11	52	24.99	43	541.5	34	4.810	25	77.11	43	24.99	35	541.5	43	77.7
205	0.107	145	2.962	—	NA	152	31.00	204	0.107	142	2.962	—	NA	147	31.00	—	NA
30	9.700	41	46.50	34	52.80	52	356.2	48	2.800	37	46.50	46	18.10	51	295.8	96	22.1

Rank by total assets 1985	Rank by total assets 1984	Company	Total assets $000	Total revenue Rank	Total revenue $000	Net income Rank	Net income $000	Stockholders' equity Rank	Stockholders' equity $000	Capital & Expl. spending Rank	Capital & Expl. spending $000
52	52	Louisiana Land & Exploration Co.	1,405,300	48	1,179,700	77	10,400	44	566,500	28	400,30
53	54	Grace Natural Resource Group[21]	1,285,000	62	512,000	40	[4]47,400	—	NA	91	44,10
54	26	Mesa Petroleum Co.[17]	1,256,973	63	484,526	18	167,493	71	268,746	80	62,29
55	76	Celeron Corp.[22]	1,234,073	149	36,575	17	[4]167,586	—	NA	16	995,21
56	56	Zapata Corp.[7]	1,141,887	78	288,674	384	(71,188)	56	396,987	66	90,30
57	60	Santa Fe Energy Co.[23]	1,081,700	61	516,900	27	[4]120,300	—	NA	46	215,00
58	61	Oneok Inc.[10]	1,051,491	49	1,049,116	48	37,102	54	408,533	73	75,86
59	—	American Royalty Trust[24,25]	1,026,535	148	[28]37,359	71	[28]17,837	36	[27]729,690	—	NA
60	63	Questar Corp.	1,005,258	59	643,535	35	61,686	53	413,902	56	120,73
61	64	Total Petroleum (North America) Ltd.	1,002,618	35	2,372,129	31	85,902	60	360,155	59	111,93
62	73	Hamilton Oil Corp.	974,381	79	282,783	60	26,452	70	288,117	49	195,10
63	65	Petro-Lewis Corp.[24]	962,300	87	232,500	363	(24,800)	85	168,400	39	294,55
64	—	Rowan Cos. Inc.	949,156	82	272,518	105	3,830	43	578,996	83	57,53
65	68	National Fuel Gas Co.[7]	922,290	52	975,525	41	46,947	63	343,026	67	87,71
56	75	Apache Petroleum Co.	898,373	84	260,526	390	(115,094)	46	520,092	32	374,55
67	58	Tesoro Petroleum Corp.[7]	897,709	36	2,299,504	388	(87,028)	64	336,981	58	113,98
68	69	MDU Resources Group Inc.[29]	888,180	68	409,054	56	29,231	75	230,864	90	45,51
69	59	Reading & Bates Corp.	872,293	86	234,202	392	(190,682)	72	266,805	55	120,78
70	78	Equitable Resources Inc.	861,981	64	476,902	37	54,973	58	386,663	57	117,22
71	71	Pioneer Corp.[30]	814,445	70	387,879	45	40,123	55	399,987	82	58,95
72	118	Diversified Energies Inc.[31]	792,964	54	912,529	64	22,070	73	241,626	61	105,81
73	70	Unimar Corp.[32]	766,390	74	324,223	84	8,391	87	160,894	69	84,16
74	67	Pogo Producing Co.	741,570	85	241,382	385	(81,766)	115	58,181	54	124,93
75	62	Kaneb Services, Inc.	738,918	93	178,929	72	15,086	61	359,837	94	40,95
76	82	CENEX (Farmer's Union Central Exchange)[7]	690,551	47	1,375,813	166	[33]426	66	[34]300,547	107	29,91
77	74	Inexco Oil Co.[35]	669,224	97	144,825	377	(45,966)	80	191,622	87	51,90
78	92	Yankee Companies Inc.[24]	664,088	88	213,078	110	3,446	137	28,737	245	1,79
79	88	Quaker State Oil Refining Corp.	649,129	51	993,003	42	45,892	65	311,864	74	68,20
80	83	Tosco Corp.	629,315	44	1,518,949	82	8,867	371	(234,926)	113	26,72
81	79	Tidewater Inc.[36]	627,654	75	318,865	379	(47,390)	68	298,957	72	79,11
82	—	UGI Corp.	621,855	60	605,514	364	(27,233)	83	174,773	93	42,81
83	81	Lear Petroleum Corp.	616,326	65	429,084	378	(47,044)	88	154,179	88	51,44
84	86	Helmerich & Payne Inc.[7]	616,034	90	191,970	69	18,498	51	427,860	78	63,58
85	113	Sunshine Mining Co.[37]	613,396	95	175,829	380	(57,624)	81	187,829	130	21,55
86	96	BHP Petroleum (Americas) Inc.[38,39]	597,642	127	[40]53,069	98	[40]4,715	47	501,254	131	[40]19,46
87	90	Adobe Resources Corp.[41]	574,367	116	79,445	394	(219,051)	57	387,094	75	66,47
88	80	Southern Union Co.	567,357	73	337,568	70	17,87[illegible]	89	146,795	103	32,38
89	77	Noble Affiliates, Inc.	564,986	94	177,624	269	(893)	67	300,250	53	134,66
90	95	Apache Corp.	536,378	99	130,038	86	7,919	77	225,975	60	106,59
91	91	Forest Oil Corp.	524,487	98	134,828	80	9,801	102	90,387	71	83,58
92	94	Wicor Inc.	521,813	56	834,498	61	26,251	84	169,431	104	32,08
93	85	Southland Royalty Co.[42]	519,371	76	309,954	54	30,722	78	193,182	65	94,64
94	89	Crown Central Petroleum Corp.	484,287	45	1,491,002	102	4,098	79	191,634	101	33,89
95	84	Texas Gas Exploration Corp.[8,43]	471,596	77	306,084	59	26,797	74	240,076	63	96,21
96	98	Home Petroleum Corp.[10,44]	430,694	112	90,019	111	3,274	—	NA	86	53,28
97	102	First Mississippi Corp.[24]	395,435	80	277,570	68	19,139	82	180,787	79	63,25
98	—	National Cooperative Refinery Assn.[24]	394,790	55	899,867	74	[45]13,192	86	[46]166,617	123	23,13
99	—	Quinoco Cos.[47]	385,238	111	92,919	318	(3,219)	62	343,248	—	NA
100	104	Damson Oil Corp.[7]	355,122	114	89,048	284	(1,332)	104	81,913	108	29,44
101	106	Primary Fuels Inc[8,48]	353,450	103	110,385	371	(35,454)	—	NA	40	268,42
102	97	Crystal Oil Co.	341,694	110	94,366	383	(67,831)	367	(31,163)	143	13,33

Worldwide liquids production		Worldwide natural gas production		Worldwide liquids reserves		Worldwide natural gas reserves		U.S. liquids production		U.S. natural gas production		U.S. liquids reserves		U.S. natural gas reserves		U.S. net wells drilled	
Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Wells
25	17.30	27	77.20	27	90.70	42	551.9	21	12.20	29	62.70	25	57.10	50	314.7	42	87.2
55	2.949	56	25.41	42	32.44	64	237.1	59	1.845	53	24.58	61	12.76	59	225.8	87	26.5
—	NA	—	NA	—	NA	—	NA	—	NA	—	NA	—	NA	—	NA	—	NA
168	0.217	91	9.584	26	94.53	78	160.6	166	0.217	81	9.584	21	94.53	69	160.6	36	108.7
149	0.312	110	5.869	140	3.089	80	131.3	160	0.268	125	4.132	147	2.228	92	90.22	95	22.6
22	18.20	49	31.80	22	131.3	72	201.0	19	18.20	46	31.80	19	131.3	64	201.0	16	278.7
126	0.525	85	10.42	133	3.895	90	114.1	122	0.525	78	10.42	127	3.895	82	114.1	91	23.7
40	[28]4.867	65	[28]16.21	28	86.79	47	421.8	33	[28]4.867	59	[28]16.21	22	86.79	41	421.8	272	[28]1.5
54	3.016	52	29.82	62	16.12	45	522.4	47	3.016	49	29.82	52	16.12	38	522.4	71	33.0
51	3.110	71	13.55	47	26.77	62	264.6	62	1.640	91	7.950	92	6.830	120	49.55	90	24.2
45	4.126	57	25.29	31	58.37	33	856.0	138	0.366	112	5.239	134	3.374	138	36.60	181	5.6
36	5.747	58	24.27	32	56.36	63	262.2	29	5.747	54	24.27	26	56.40	55	262.2	29	150.2
233	0.068	157	2.265	—	[28]NA	—	[28]NA	233	0.068	155	2.265	—	[28]NA	—	[28]NA	122	13.6
215	0.096	95	8.170	189	1.257	95	108.2	215	0.096	88	8.170	185	1.257	85	108.2	63	42.0
53	3.035	35	61.57	64	15.23	51	361.4	45	[8]3.035	30	[8]61.57	54	[8]15.23	46	[8]361.4	59	43.7
67	2.045	153	2.619	101	6.879	122	58.04	109	0.657	151	2.616	131	3.561	149	28.80	129	12.1
79	1.414	203	0.904	66	14.80	28	912.7	69	1.414	201	0.904	55	14.80	25	912.7	—	—
61	2.341	99	7.595	53	22.04	88	119.4	92	0.875	99	6.589	66	11.69	88	103.9	84	27.6
125	0.541	50	31.58	119	5.133	40	573.3	121	0.541	47	31.58	111	5.133	34	573.3	19	233.3
110	0.702	43	40.81	120	5.060	30	885.6	103	0.702	40	40.81	112	5.060	26	885.6	93	22.9
132	0.428	80	12.00	160	1.952	99	93.80	129	[8]0.428	74	[8]12.00	155	[8]1.952	90	[8]93.80	66	40.2
52	3.086	30	73.29	56	20.45	25	1,213.7	68	1.438	72	12.20	80	8.702	104	71.41	79	29.6
44	4.210	40	50.09	55	21.17	57	320.7	39	4.210	36	50.09	45	20.88	54	263.9	65	40.2
92	1.042	69	13.82	95	7.501	89	118.6	83	1.042	64	13.82	86	7.501	81	118.6	55	47.8
65	2.159	193	1.162	70	13.30	233	5.993	53	2.159	191	1.162	59	13.30	231	5.993	81	28.0
63	2.216	59	21.05	74	11.81	50	366.6	52	2.216	55	21.05	65	11.81	44	366.6	97	22.0
291	0.025	260	0.271	265	0.298	200	10.64	292	0.025	260	0.271	263	0.298	198	10.64	321	0.5
82	1.251	137	3.749	59	17.75	106	85.78	73	1.251	131	3.749	48	17.75	98	85.78	25	172.5
143	0.355	271	0.230	75	11.14	253	3.862	142	0.355	271	0.230	193	1.135	253	3.862	—	—
70	1.925	129	4.233	115	5.446	264	3.166	139	0.364	138	3.324	377	0.007	361	0.209	141	10.3
—	—	213	0.792	—	—	232	6.053	—	—	210	0.792	—	—	230	6.053	187	5.0
141	0.359	67	14.00	182	1.477	84	125.9	140	0.359	62	14.00	180	1.477	77	125.9	111	17.2
84	1.183	75	12.88	76	10.76	66	233.0	76	1.183	68	12.88	67	10.76	57	233.0	104	19.5
105	0.770	100	7.256	85	9.073	77	161.0	101	0.741	100	6.478	83	8.112	89	102.3	75	30.6
83	[40]1.230	104	[40]6.866	46	26.99	65	237.0	75	[40]1.230	96	[40]6.866	40	26.99	56	237.0	—	NA
64	2.192	112	5.431	40	39.80	75	188.7	89	0.948	107	5.431	37	32.30	67	188.7	85	27.6
148	0.315	128	4.239	151	2.275	104	86.52	148	0.315	124	4.239	145	2.275	95	86.52	114	16.5
50	3.328	54	25.53	45	28.84	59	302.6	46	3.023	52	24.82	42	26.12	52	289.2	57	44.4
93	1.039	53	27.20	123	4.606	73	197.1	84	[8]1.039	50	[8]27.20	117	[8]4.606	65	[8]197.1	107	18.7
107	0.743	45	39.24	122	4.835	55	345.4	110	0.654	41	38.59	128	3.820	49	322.5	94	22.9
—	NA	—	NA	327	0.104	319	1.000	—	NA	—	NA	325	0.104	317	1.000	—	NA
35	5.901	42	44.00	30	65.29	41	555.0	28	5.795	39	44.00	23	64.49	36	534.0	38	103.0
89	1.070	92	9.478	96	7.118	107	84.37	80	1.070	82	9.478	87	7.118	99	84.37	177	5.8
29	10.17	48	36.04	71	13.10	60	300.2	23	9.977	44	36.04	64	12.25	63	212.3	54	48.2
74	1.586	366	0.013	81	9.479	371	0.132	63	1.586	366	0.013	73	9.479	371	0.132	82	28.0
118	0.596	120	5.003	164	1.842	149	31.60	112	0.596	114	5.003	160	1.842	144	31.60	60	43.5
77	1.502	132	3.861	88	8.817	129	45.41	66	1.502	128	3.861	78	8.817	124	45.41	52	52.0
78	1.477	64	16.21	89	8.718	79	143.7	67	1.477	58	16.21	79	8.718	72	143.7	186	5.0
102	0.787	98	7.670	125	4.525	116	67.67	97	[8]0.787	92	[8]7.670	119	[8]4.525	109	[8]67.67	88	26.5
69	1.981	60	20.63	50	25.40	56	332.9	74	1.251	56	20.17	56	14.21	70	159.0	30	142.0
62	2.285	70	13.68	72	12.80	94	109.4	51	2.285	65	13.68	60	12.80	84	109.4	249	1.9

Rank by total assets 1985	Rank by total assets 1984	Company	Total assets $000	Total revenue Rank	Total revenue $000	Net income Rank	Net income $000	Stockholders' equity Rank	Stockholders' equity $000	Capital & Exp spending Rank	Capital & Exp spending $00
103	103	**Sabine Corp.**	338,702	109	99,328	96	5,416	76	226,516	89	49,
104	163	**Seagull Energy Corp.**	300,904	106	106,273	88	7,347	105	79,092	95	40,
105	119	**Depco Inc. (DeKalb Petroleum Corp.)**[10,49]	293,600	108	99,400	43	[50]42,900	—	NA	70	83,
106	107	**Texas International Co.**	261,222	105	106,850	368	(31,881)	370	(114,725)	96	40,
107	112	**NUI Corp.**[7]	256,446	72	341,516	87	7,738	113	64,958	105	31,
108	131	**Templeton Energy Inc.**[51]	244,168	192	16,298	275	(982)	97	95,555	159	9,
109	117	**Southwestern Energy Co.**	242,915	107	99,966	66	20,968	110	70,637	98	37,
110	116	**Pelto Oil Co.**[52]	240,744	122	60,774	63	24,589	—	NA	92	43,
111	114	**Kaiser Energy Inc.**[53]	235,242	150	36,010	122	1,955	91	129,823	120	24,
112	123	**Prairie Producing Co.**[54]	225,742	154	32,405	351	(14,096)	142	26,904	106	30,
113	143	**Triton Energy Corp.**[38]	219,464	132	51,025	79	9,847	96	96,867	85	53,
114	128	**Northern Michigan Exploration Co.**[55]	216,531	113	89,771	73	13,445	90	134,083	77	64,
115	120	**Universal Resources Corp.**[56]	210,038	140	43,537	97	5,021	93	116,925	119	25,
116	110	**MCO Resources Inc.**	198,218	124	59,362	376	(42,530)	125	43,575	121	24,
117	125	**Howell Corp.**	183,950	104	107,084	109	3,543	108	75,260	111	27,
118	132	**Felmont Oil Corp.**[57]	180,322	118	73,076	90	6,726	—	NA	110	27,
119	121	**Kirby Exploration Co.**	178,726	117	76,461	116	2,613	109	73,430	163	9,
120	133	**Moore McCormack Energy Co.**[58]	177,700	147	37,800	76	[4]12,000	—	NA	118	25,
121	136	**Bow Valley Petroleum Inc.**[59]	171,100	126	54,200	137	[4]1,200	—	NA	146	12,
122	111	**Ensource Inc.**	166,728	130	51,918	370	(34,986)	123	44,965	129	21,
123	140	**Tricentrol PLC**[59]	165,880	—	NA	112	[4]3,045	—	NA	—	N
124	108	**Tom Brown Inc.**[36]	165,193	145	40,447	357	(18,772)	106	79,077	134	17,
125	138	**Wainoco Oil Corp.**	158,684	143	42,776	344	(11,728)	153	21,200	116	25,
126	109	**Cenergy Corp.**	157,420	136	[60]47,598	381	[60](63,440)	119	48,308	126	[60]22,
127	139	**Pyro Energy Corp.**	155,676	100	129,974	81	9,342	111	70,327	156	10,
128	149	**Consolidated Oil & Gas Inc.**[61]	153,096	161	27,534	300	(2,186)	205	7,999	115	26,
129	150	**Conquest Exploration Co.**	149,366	165	26,477	107	3,658	101	93,120	52	148,
130	145	**Worldwide Energy Corp.**	141,461	119	68,661	355	(17,321)	130	37,138	102	33,
131	135	**Sage Energy Co.**[24]	139,435	120	65,413	341	(10,265)	107	77,435	100	34,
132	126	**Texas American Energy Corp.**	139,383	92	185,705	365	(28,054)	160	18,447	136	16,
133	147	**Allegheny & Western Energy Corp.**[24]	134,964	83	270,458	75	12,491	133	33,440	142	13,
134	156	**Asamera Inc.**[58]	134,631	81	273,507	94	5,594	—	NA	109	28,
135	137	**Marion Corp.**[14,62]	133,903	171	23,481	373	(37,500)	366	(29,542)	197	4,
136	122	**Oxoco Inc.**	132,458	139	44,666	386	(84,703)	368	(31,823)	148	11,
137	130	**Houston Oil Trust**	125,609	155	31,566	58	28,772	92	[27]125,609	—	N
138	127	**Park-Ohio Industries Inc.**	124,064	91	186,190	89	6,946	100	93,805	152	11,
139	173	**Chieftain Development Co. Ltd.**[59]	117,716	185	19,207	118	2,202	—	NA	137	15,
140	192	**Snyder Oil Partners**	117,326	159	28,993	92	6,204	95	[18]105,758	84	56,
141	169	**Graham-McCormick Oil & Gas Part.**[64]	116,297	162	27,468	151	739	135	31,287	209	3,
142	155	**Wiser Oil Co.**	115,766	131	51,309	83	8,392	99	94,159	122	23,
143	—	**Freeport-McMoRan Oil & Gas Royalty Trust**	113,850	128	52,488	57	29,055	98	[27]94,657	—	N
144	157	**IMC Exploration Co.**[24,65]	113,300	115	80,400	67	[66]20,200	—	NA	112	26,
145	153	**San Juan Basin Royalty Trust**	111,110	146	40,256	47	39,801	94	[27]109,511	—	N
146	184	**Hadson Petroleum Corp.**	108,263	102	117,691	99	4,487	131	36,906	117	25,
147	144	**Kenai Corp.**[14]	108,134	134	50,722	367	(31,861)	228	6,042	196	4,
148	146	**Tipperary Corp.**	106,223	138	46,032	362	(23,150)	149	22,308	205	3,
149	158	**Global Natural Resources Inc.**	103,689	129	51,977	119	2,095	103	87,352	135	16,
150	159	**Unit Drilling & Exploration Co.**	99,517	137	46,962	316	(3,019)	117	51,509	139	13,
151	161	**Flag-Redfern Oil Co.**	98,797	144	42,579	106	3,757	112	66,685	124	22,
152	148	**May Petroleum Inc.**	98,748	163	27,361	366	(31,841)	116	54,781	147	12,
153	151	**Entex Energy Development Ltd.**	97,161	157	30,253	369	(32,887)	114	[18]59,595	125	22,

Worldwide liquids production		Worldwide natural gas production		Worldwide liquids reserves		Worldwide natural gas reserves		U.S. liquids production		U.S. natural gas production		U.S. liquids reserves		U.S. natural gas reserves		U.S. net wells drilled	
Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Wells
66	2.100	76	12.60	68	14.20	81	129.2	55	2.100	69	12.60	57	14.20	73	129.2	47	62.9
341	0.010	172	1.781	225	0.663	140	37.74	341	0.010	168	1.781	222	0.663	133	37.74	148	9.4
57	2.500	77	12.40	51	25.40	58	305.3	57	1.900	98	6.600	63	12.30	117	53.60	73	32.0
58	2.461	83	11.24	57	19.03	91	114.0	49	2.401	83	8.954	51	16.25	111	66.76	74	30.8
264	0.039	215	0.778	257	0.363	214	8.683	264	0.039	213	0.778	255	0.363	212	8.683	78	29.9
172	0.202	144	3.000	126	4.273	74	190.8	171	0.202	141	3.000	120	4.273	66	190.8	253	1.9
142	0.359	72	13.54	184	1.472	70	215.2	141	0.359	66	13.54	182	1.472	62	215.2	58	43.9
106	0.753	78	12.34	99	6.947	98	104.8	100	0.753	71	12.34	90	6.947	87	104.8	119	13.7
140	0.367	102	7.062	180	1.535	86	121.2	137	0.367	94	7.062	178	1.535	79	121.2	72	33.0
116	0.606	119	5.087	69	13.36	113	69.70	111	0.606	113	5.087	58	13.36	106	69.70	100	20.3
73	1.601	89	9.668	60	17.53	161	23.92	127	0.453	152	2.493	157	1.883	184	14.45	130	12.0
71	1.900	93	8.900	94	7.600	115	69.10	60	1.810	84	8.900	93	6.700	108	69.10	45	76.0
114	0.693	94	8.594	118	5.181	109	81.72	107	0.693	86	8.594	110	5.181	101	81.72	61	43.1
103	0.775	74	12.94	129	4.116	100	92.67	98	[6]0.775	67	[6]12.94	123	[6]4.116	91	[6]92.67	158	8.3
96	0.899	136	3.773	82	9.399	103	87.84	91	0.892	136	3.482	75	9.205	105	70.34	154	8.6
104	0.773	86	10.39	128	4.124	102	88.14	99	0.773	79	10.39	122	4.124	94	88.14	80	29.0
124	0.542	123	4.733	139	3.172	165	23.01	120	[6]0.542	118	[6]4.733	136	[6]3.172	160	[6]23.01	266	1.6
100	0.803	141	3.512	87	8.870	126	50.23	95	0.803	135	3.512	77	8.870	119	50.23	135	11.1
95	0.996	131	4.121	63	15.43	131	44.30	87	0.996	127	4.121	53	15.43	125	44.30	195	4.3
115	0.678	90	9.639	105	6.364	82	128.6	108	0.678	80	9.639	98	6.364	74	128.6	83	27.9
349	0.008	124	4.653	345	0.069	118	64.03	349	0.008	119	4.653	344	0.069	112	64.03	101	20.3
90	1.050	152	2.653	92	7.698	121	59.41	81	1.050	150	2.653	84	7.698	114	59.41	108	18.0
161	0.243	87	9.855	173	1.660	71	203.3	146	0.331	137	3.446	116	4.909	121	48.55	202	3.8
97	[60]0.893	125	[60]4.637	103	6.405	119	63.71	90	[60]0.893	120	[60]4.637	96	6.405	113	63.71	125	[60]12.7
165	0.238	160	2.025	196	1.098	183	15.89	163	0.238	158	2.025	195	1.098	179	15.89	121	13.6
117	0.596	118	5.138	93	7.694	76	185.9	116	0.584	115	4.938	85	7.561	68	177.5	149	9.2
146	0.340	105	6.227	161	1.946	112	77.04	145	0.340	101	6.226	156	1.946	103	77.04	120	13.7
87	1.118	73	13.21	84	9.147	110	80.44	124	0.510	145	2.771	115	4.991	176	17.11	178	5.7
80	1.328	106	6.174	90	8.480	139	38.06	70	1.328	102	6.174	81	8.480	132	38.06	53	50.1
121	0.568	149	2.727	117	5.296	163	23.58	117	0.568	147	2.727	109	5.296	158	23.58	102	20.1
387	(s)	206	0.842	387	0.001	172	20.84	387	(s)	204	0.842	387	0.001	168	20.84	117	14.0
236	0.065	305	0.111	317	0.119	359	0.258	236	0.065	305	0.111	315	0.119	357	0.258	—	NA
173	0.199	186	1.273	152	2.263	186	14.87	172	0.199	184	1.273	146	2.263	183	14.87	308	0.7
131	0.436	130	4.130	179	1.551	154	28.61	128	0.436	126	4.130	177	1.551	150	28.61	258	1.7
101	0.793	103	6.924	143	[63]2.661	145	[63]35.83	96	0.793	95	6.924	138	[63]2.661	139	[63]35.83	131	11.9
178	0.168	140	3.561	142	2.701	108	83.39	179	0.168	134	3.561	137	2.701	100	83.39	92	23.0
151	0.304	261	0.271	112	5.673	215	8.574	150	0.304	261	0.271	105	5.673	213	8.574	235	2.3
123	0.552	127	4.332	114	5.459	134	42.29	119	0.552	122	4.332	107	5.459	127	42.29	256	1.8
175	0.180	96	8.053	178	1.552	96	107.3	176	0.180	89	8.053	176	1.552	86	107.3	—	NA
88	1.108	111	5.710	80	9.733	105	85.96	79	[6]1.108	105	[6]5.710	72	[6]9.733	97	[6]85.96	37	105.4
128	0.486	84	10.74	215	0.788	135	41.75	125	0.486	77	10.74	214	0.788	128	41.75	—	NA
119	0.595	82	11.28	134	3.800	101	89.70	113	0.595	76	11.28	129	3.800	93	89.70	68	36.0
228	0.075	68	13.97	159	1.974	54	346.4	228	0.075	63	13.97	154	1.974	48	346.4	152	8.6
163	0.242	146	2.962	197	1.090	166	22.63	162	0.242	143	2.962	196	1.090	161	22.63	113	16.8
224	0.083	227	0.629	277	0.242	256	3.605	224	0.083	226	0.629	275	0.242	256	3.605	227	2.8
383	(s)	386	0.002	383	0.004	385	0.026	383	(s)	386	0.002	383	0.004	385	0.026	206	3.6
136	0.408	88	9.799	145	2.483	97	105.9	135	0.380	97	6.609	172	1.612	167	21.20	132	11.5
198	0.120	170	1.821	230	0.572	190	13.55	198	0.120	166	1.821	228	0.572	188	13.55	159	8.3
94	1.000	122	4.838	106	6.144	138	38.57	85	1.000	117	4.838	99	6.144	131	38.57	99	20.6
177	0.175	101	7.112	210	0.825	136	40.82	178	0.175	93	7.112	209	0.825	129	40.82	67	38.0
133	0.422	107	6.157	131	3.949	132	44.00	130	0.422	103	6.157	125	3.949	126	44.00	147	9.7

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Rank by total assets 1985	Rank by total assets 1984	Company	Total assets $000	Total revenue Rank	Total revenue $000	Net income Rank	Net income $000	Stockholders' equity Rank	Stockholders' equity $000	Capital & Expl. spending Rank	Capital & Expl. spending $000
154	142	**Callon Petroleum Co.**	94,896	152	34,106	375	(41,107)	352	(1,663)	132	18,88
155	154	**Pend Orielle Oil & Gas Corp.**[67]	91,868	141	43,511	78	[4]9,852	—	NA	128	21,83
156	—	**Thermal Exploration Inc.**[7,68]	86,856	251	4,947	223	[68](169)	—	NA	144	13,14
157	167	**SPG Exploration Corp.**[69]	84,667	153	32,687	291	[4](1,521)	—	NA	160	9,31
158	174	**Chapman Energy Inc.**	81,758	184	20,781	184	177	136	28,878	170	7,97
159	134	**American Quasar Petroleum Co.**	76,384	167	25,311	382	(65,446)	369	(65,039)	251	1,69
160	170	**Magic Circle Energy Corp.**[62]	76,363	172	23,405	233	(315)	278	2,312	274	1,15
161	166	**Pauley Petroleum Inc.**[10]	75,190	89	198,226	120	2,082	148	22,735	161	9,27
162	—	**Walker Energy Partners**[70]	71,363	181	21,891	352	(16,171)	121	[18]47,368	183	5,97
163	152	**Alamco Inc.**	68,354	174	23,062	343	(11,271)	167	15,191	202	4,12
164	175	**Wilshire Oil Co. of Texas**	67,534	202	13,023	121	2,016	156	19,558	168	8,11
165	—	**ConVest Energy Partners Ltd.**	61,484	178	22,387	348	(13,537)	122	[18]46,353	180	6,20
166	160	**Argo Petroleum Corp.**	60,146	177	22,572	372	(36,809)	363	(15,178)	204	3,82
167	168	**Galaxy Oil Co.**	59,678	197	14,243	361	(21,695)	188	10,681	208	3,66
168	190	**McFarland Energy Inc.**	58,571	186	19,117	103	4,050	129	37,651	166	8,66
169	185	**Equity Oil Co.**	58,460	183	21,108	104	3,954	127	39,847	150	11,25
170	178	**Beard Oil Co.**	56,554	125	58,895	85	8,294	152	21,276	154	10,60
171	194	**Patrick Petroleum Co.**	55,597	210	10,265	125	1,848	126	42,100	172	7,56
172	172	**OKC Limited Partnership**	55,200	121	62,248	55	30,247	120	[18]47,765	177	6,46
173	253	**American Exploration Co.**	54,773	206	10,654	182	205	155	20,738	97	38,04
174	187	**Drillers Inc.**[36]	53,698	175	22,675	330	(5,438)	159	18,510	302	68
175	182	**May Energy Partners Ltd.**	53,323	173	23,267	358	(19,873)	138	28,408	114	26,57
176	—	**Samson Energy Co.**[72]	51,436	191	16,663	266	(863)	124	43,791	230	2,30
177	177	**LL&E Royalty Trust**	50,060	142	42,876	44	41,913	118	50,054	—	NA
178	—	**Houston Oil Fields Co.**	50,003	201	13,266	294	(1,822)	157	18,870	165	8,68
179	171	**Maynard Oil Co.**	49,218	158	29,888	95	5,503	134	31,666	127	22,18
180	212	**Petroleum Investments Ltd.**	48,473	198	14,106	310	(2,711)	128	37,811	213	3,32
181	—	**Tribune/Swab-Fox Cos. Inc.**	48,436	135	49,242	117	2,490	140	27,749	199	4,28
182	66	**Fuel Resources Inc.**[7,73]	45,959	218	8,972	178	267	—	NA	155	10,31
183	199	**Statex Petroleum Inc.**[56]	43,742	189	17,056	271	(899)	145	25,140	138	15,00
184	—	**Deminex U.S. Oil Co.**	43,398	156	30,540	126	1,843	168	15,125	141	13,53
185	196	**Fuel Resources Development Co.**[61]	42,382	211	10,129	147	846	151	21,522	211	3,38
186	198	**KenCope Energy Cos.**[24]	41,406	169	23,634	200	(29)	141	26,911	169	8,07
187	181	**Federated Natural Resources Corp.**	41,194	190	16,971	336	(7,806)	185	11,104	158	9,97
188	189	**Energy Ventures Inc.**	40,907	199	14,070	323	(4,137)	146	23,525	333	36
189	203	**Rocky Mountain Natural Gas Co. Inc.**[74]	40,511	160	27,686	153	734	181	11,770	190	4,72
190	—	**Midland SouthWest Corp.**	40,056	164	26,789	356	(17,787)	232	5,570	234	2,20
191	202	**Presidio Oil Co.**[24]	38,760	228	7,904	134	1,407	144	25,279	176	6,50
192	217	**Bogert Oil Co.**[7]	38,340	187	18,841	129	1,814	166	15,629	145	12,97
193	—	**Devon Resource Investors**[75]	38,114	204	11,818	146	950	132	[18]34,034	173	6,85
194	204	**MSR Exploration Ltd.**	37,688	215	9,242	154	715	139	27,848	218	2,75
195	195	**MacMillan Ring Free Oil Co. Inc.**	37,355	96	173,906	243	(463)	211	7,624	239	2,05
196	200	**Plains Resources Inc.**	37,269	260	4,347	250	(606)	204	8,014	140	13,55
197	241	**Alexander Energy Corp.**[36]	36,860	221	8,576	159	476	169	14,765	188	4,93
198	211	**Royal Resources Corp.**[24]	35,687	217	9,016	127	1,841	143	26,341	157	10,02
199	247	**Energy Oil Inc.**[24]	35,472	195	15,068	114	2,975	209	7,679	133	18,29
200	—	**Calumet Industries Inc.**[7]	33,428	123	60,329	132	1,467	171	14,219	279	1,08
201	223	**Shanley Oil Co.**	32,241	166	25,758	216	(141)	180	11,875	175	6,76
202	179	**Trinity Resources Ltd.**	31,170	203	12,519	353	(16,573)	163	17,648	187	5,20
203	180	**Ethyl Corp. (Oil & Gas Segment)**	30,900	176	22,600	91	[4]6,300	—	NA	179	6,30
204	—	**Belden & Blake Energy Co.**	30,828	214	9,428	165	435	147	[18]23,213	178	6,41

Worldwide liquids production		Worldwide natural gas production		Worldwide liquids reserves		Worldwide natural gas reserves		U.S. liquids production		U.S. natural gas production		U.S. liquids reserves		U.S. natural gas reserves		U.S. net wells drilled	
Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Wells
120	0.585	138	3.680	137	3.400	176	17.88	115	0.585	132	3.680	133	3.400	172	17.88	160	8.2
127	0.516	179	1.547	86	8.987	144	36.99	123	0.516	177	1.547	76	8.987	137	36.99	—	NA
—	NA	—	NA	314	0.128	237	5.284	—	NA	—	NA	312	0.128	236	5.284	—	NA
137	0.401	97	8.012	121	5.000	93	110.0	132	0.401	90	8.012	114	5.000	83	110.0	143	10.0
170	0.206	167	1.866	188	1.273	175	18.22	169	0.206	164	1.866	184	1.273	171	18.22	110	17.5
145	0.341	139	3.587	174	1.623	128	46.29	144	[8]0.341	133	[8]3.587	171	[8]1.623	123	[8]46.29	273	1.5
159	0.272	158	2.251	109	5.978	124	56.08	159	0.272	156	2.251	102	5.978	115	56.08	268	1.6
86	1.130	226	0.640	79	9.897	193	12.32	78	1.130	225	0.640	71	9.897	191	12.32	167	7.2
160	0.248	121	4.887	150	2.318	137	40.28	161	0.248	116	4.887	144	2.318	130	40.28	332	0.3
251	0.051	150	2.722	246	0.461	125	51.42	251	0.051	148	2.722	244	0.461	118	51.42	191	4.6
164	0.241	156	2.308	141	2.903	148	32.80	174	0.185	170	1.718	168	1.707	181	15.25	109	18.0
122	0.564	147	2.830	136	3.508	158	26.19	118	0.564	144	2.830	132	3.508	154	26.19	252	1.9
112	0.696	163	1.988	61	16.54	130	44.33	105	0.696	180	1.364	50	16.54	143	31.76	—	—
147	0.318	188	1.247	104	6.376	117	66.98	147	0.318	186	1.247	97	6.376	110	66.98	50	58.6
113	0.694	196	1.067	83	9.354	209	9.065	106	0.694	194	1.067	74	9.354	206	9.065	123	13.2
109	0.716	200	1.030	91	8.245	120	61.22	114	0.594	212	0.784	101	6.132	116	55.70	198	4.1
135	0.421	148	2.740	162	1.855	189	13.92	131	0.421	146	2.740	158	1.855	187	13.92	98	20.8
210	0.101	277	0.208	214	0.797	287	2.275	210	0.101	277	0.208	213	0.797	286	2.275	225	2.8
75	[71]1.543	115	[71]5.281	107	6.143	141	37.51	64	[71]1.543	109	[71]5.281	100	6.143	134	37.51	303	0.8
308	0.018	194	1.155	149	2.347	184	15.57	175	0.180	192	1.155	143	2.347	180	15.57	193	4.4
297	0.022	222	0.670	290	0.204	238	5.192	298	0.022	221	0.670	288	0.204	237	5.192	320	0.5
138	0.389	126	4.414	175	1.598	157	26.28	133	0.389	121	4.414	173	1.598	153	26.28	168	7.1
245	0.059	117	5.248	278	0.239	160	24.69	245	0.059	111	5.248	276	0.239	156	24.69	243	2.1
85	1.151	135	3.786	111	5.685	181	16.79	77	1.151	130	3.786	104	5.685	177	16.79	242	2.1
154	0.282	162	2.006	168	1.739	168	22.09	154	0.282	160	2.006	165	1.739	163	22.09	174	6.1
129	0.479	134	3.832	154	2.133	171	21.22	136	0.371	173	1.641	149	2.133	166	21.22	265	1.7
187	0.144	142	3.318	213	0.812	162	23.64	188	0.144	139	3.318	212	0.812	157	23.64	—	NA
235	0.065	209	0.802	266	0.296	222	7.402	235	0.065	207	0.802	264	0.296	220	7.402	185	5.3
—	NA	174	1.659	264	0.312	151	31.10	—	NA	171	1.659	262	0.312	146	31.10	—	NA
171	0.205	154	2.477	166	1.811	147	33.47	170	0.205	153	2.477	162	1.811	141	33.47	106	18.8
99	0.806	133	3.855	98	6.947	159	25.86	94	0.806	129	3.855	89	6.947	155	25.86	62	43.0
227	0.077	155	2.317	217	0.747	85	123.5	227	0.077	154	2.317	216	0.747	78	123.5	144	10.0
252	0.051	234	0.547	282	0.228	244	4.673	252	0.051	234	0.547	280	0.228	243	4.673	157	8.4
156	0.278	168	1.858	205	0.968	206	9.661	156	0.278	165	1.858	204	0.968	203	9.661	171	6.4
144	0.349	165	1.975	156	2.035	207	9.342	143	0.349	162	1.975	151	2.035	204	9.342	—	—
—	NA	257	0.300	—	—	272	2.800	—	NA	257	0.300	—	—	271	2.800	—	—
256	0.047	254	0.327	226	0.659	226	6.700	256	0.047	254	0.327	224	0.659	224	6.700	335	0.3
212	0.100	178	1.565	239	0.502	146	33.59	212	0.100	176	1.565	237	0.502	140	33.59	124	12.9
188	0.143	143	3.291	223	0.665	164	23.44	189	0.143	140	3.291	221	0.665	159	23.44	103	19.9
218	0.090	151	2.718	221	0.701	153	29.49	218	0.090	149	2.718	219	0.701	148	29.49	275	1.5
201	0.113	351	0.040	148	2.373	240	5.148	201	0.113	351	0.040	142	2.373	239	5.148	115	16.0
192	0.130	—	—	207	0.870	—	—	193	0.130	—	—	206	0.870	—	—	287	1.2
167	0.229	177	1.580	202	1.021	174	19.51	165	0.229	175	1.580	201	1.021	170	19.51	142	10.1
200	0.114	166	1.951	190	1.205	156	26.88	200	0.114	163	1.951	187	1.205	152	26.88	169	6.7
176	0.178	218	0.707	209	0.848	221	7.549	177	0.178	216	0.707	208	0.848	219	7.549	116	15.5
181	0.162	175	1.642	163	1.852	155	28.31	182	0.162	172	1.642	159	1.852	151	28.31	51	56.1
220	0.085	—	NA	245	0.471	—	NA	220	0.085	—	—	243	0.471	—	NA	—	—
237	0.063	235	0.545	146	2.425	150	31.10	237	0.063	235	0.545	140	2.425	145	31.10	301	0.9
158	0.273	173	1.746	172	1.686	219	7.674	158	0.273	169	1.746	170	1.686	217	7.674	138	10.9
162	0.243	113	5.319	187	1.416	123	57.23	167	0.216	123	4.248	188	1.198	142	31.81	164	7.7
157	0.274	189	1.242	144	2.650	185	14.92	157	0.274	187	1.242	139	2.650	182	14.92	200	3.9

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Rank by total assets		Company	Total assets	Total revenue		Net income		Stockholders' equity		Capital & Expl. spending	
1985	1984		$000	Rank	$000	Rank	$000	Rank	$000	Rank	$000
205	225	Equitable Petroleum Corp.	30,236	223	8,450	143	1,042	207	7,746	203	4,01
206	216	Baruch-Foster Corp.	29,507	193	15,716	136	1,309	164	17,178	181	6,16
207	220	Euratex Corp.	29,368	233	7,242	287	(1,429)	161	18,043	184	5,95
208	215	Petroleum Development Corp.	28,920	196	14,439	170	341	193	9,116	246	1,79
209	219	Harken Oil & Gas Inc.	28,821	220	8,689	183	204	150	21,636	242	1,95
210	—	Petroleum Reserve Corp.[24]	27,962	224	8,442	131	1,771	—	NA	—	NA
211	214	Minden Oil & Gas Corp.[24,78]	27,712	242	6,321	346	(12,192)	288	1,904	171	7,813
212	193	Bracken Exploration Co.[77]	26,941	231	7,521	141	1,088	158	18,821	182	6,101
213	213	Tucker Drilling Co. Inc.[38]	26,860	168	25,251	199	(29)	154	21,095	189	4,761
214	201	Partners Oil Co.	25,995	235	6,943	342	(10,354)	358	(5,570)	272	1,195
215	—	Leader Development Corp.[14]	25,965	225	8,147	145	963	191	9,818	270	1,272
216	218	Adams Resources & Energy Inc.	25,361	101	127,916	123	1,944	362	(7,916)	220	2,683
217	200	Plains Petroleum Co.[78]	24,839	188	17,691	100	4,456	179	12,006	280	1,066
218	235	Petrominerals Corp.	24,418	182	21,121	128	1,821	176	13,155	207	3,725
219	245	Ratex Resources Inc.[7]	23,795	246	5,773	255	(651)	359	(6,244)	261	1,417
220	246	Southland Energy Corp.[14]	23,038	234	[79]7,141	259	[79](704)	178	12,898	235	[79]2,155
221	228	Western Energy Development Co.	22,937	265	3,955	317	(3,044)	283	2,125	243	1,934
222	248	American Frontier Exploration Inc.[24]	22,904	256	4,687	258	(687)	313	1,036	186	5,505
223	224	Basic Earth Science Systems Inc.[38]	22,711	257	4,611	332	(5,578)	177	12,928	248	1,760
224	231	Wichita Industries Inc.	22,100	194	15,456	244	(469)	221	6,622	214	3,289
225	—	Texon Energy Corp.[80]	21,931	230	7,612	311	(2,716)	208	7,707	252	1,690
226	237	Lomak Petroleum Inc.	21,169	179	22,259	305	(2,410)	349	(801)	191	4,725
227	197	Witco Corp. (Oil & Gas Division)	21,100	180	21,951	—	NA	—	NA	162	9,130
228	191	Saxon Oil Co.	20,573	208	10,327	354	(17,193)	175	13,310	293	855
229	229	Brock Exploration Corp.[38]	20,403	216	9,181	115	2,700	218	6,915	231	2,269
230	208	Hershey Oil Corp.	20,215	236	6,926	347	(13,433)	172	14,104	193	4,618
231	221	Summit Energy Inc.[81]	20,066	237	6,841	328	(4,783)	165	17,005	210	3,432
232	251	Resource Exploration Inc.[7]	20,015	222	8,541	124	1,938	170	14,603	192	4,668
233	260	Nugget Oil Corp.[80]	19,786	272	3,618	306	(2,450)	299	1,533	229	2,341
234	209	Jackson Exploration Inc.	19,675	207	10,488	360	(21,268)	224	6,579	164	8,867
235	—	High Plains Oil Corp.[83]	19,293	264	4,016	334	(6,751)	223	6,592	174	6,832
236	233	Arapaho Petroleum Inc.	19,232	262	4,304	325	(4,359)	192	9,373	277	1,105
237	—	Crown Zellerbach Corp. (Energy Div.)[84]	18,700	170	23,500	65	[4]21,500	—	NA	288	900
238	240	Sabine Royalty Trust	18,667	151	35,175	52	33,361	162	[27]17,786	—	NA
239	—	Home-Stake Royalty Corp.	18,319	219	8,717	140	1,111	174	13,516	195	4,548
240	242	Cambridge Royalty Co.	18,304	253	4,857	273	(940)	187	10,692	326	504
241	244	Monogram Oil & Gas Inc.[56]	18,121	282	2,993	257	(665)	206	7,962	377	17
242	243	Bellwether Exploration Co.	17,797	241	6,387	276	(1,052)	219	6,881	194	4,610
243	289	Oregon Natural Gas Development Co.	17,119	205	11,754	162	447	194	9,091	151	11,236
244	239	Premier Resources Ltd.[7]	16,901	239	6,486	320	(3,550)	334	472	247	1,787
245	230	ConVest Energy Corp.	16,144	249	5,055	312	(2,769)	200	8,329	227	2,428
246	—	Home-Stake Oil & Gas Co.	15,949	232	7,403	167	397	189	9,998	201	4,170
247	252	Norris Oil Co.	15,745	305	2,004	302	(2,255)	203	8,299	237	2,062
248	—	Barrett Resources Corp.[7]	15,711	288	2,582	188	121	212	7,303	222	2,521
249	249	Sage Drilling Co. Inc.[24]	15,558	212	9,717	277	(1,056)	210	7,660	269	1,279
250	—	Cayman Resources Corp.	15,538	277	3,275	197	(3)	360	(7,699)	374	22
251	250	Argonaut Energy Corp.[38]	15,469	281	3,081	313	(2,819)	201	8,308	198	4,316
252	264	Seahawk Oil International Inc.	15,445	268	3,772	180	235	195	8,780	317	561
253	205	Kimbark Oil & Gas Co.	15,439	229	7,659	349	(13,750)	237	5,008	289	898
254	262	Seaxe Energy Corp.	15,138	366	494	252	(617)	173	13,819	268	1,367
255	268	Swift Energy Co.	14,782	273	3,616	149	778	233	5,402	282	1,044

Worldwide liquids production		Worldwide natural gas production		Worldwide liquids reserves		Worldwide natural gas reserves		U.S. liquids production		U.S. natural gas production		U.S. liquids reserves		U.S. natural gas reserves		U.S. net wells drilled	
Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Wells
183	0.155	204	0.872	124	4.562	142	37.19	184	0.155	202	0.872	118	4.562	135	37.19	153	8.6
130	0.462	176	1.603	132	3.902	179	17.17	126	[8]0.462	174	[8]1.603	126	[8]3.902	175	[8]17.17	145	10.0
195	0.126	180	1.479	201	1.022	194	11.76	194	0.126	178	1.479	200	1.022	192	11.76	133	11.3
280	0.029	237	0.527	247	0.456	169	21.45	280	0.029	237	0.527	245	0.456	164	21.45	209	3.5
231	0.069	217	0.757	229	0.583	229	6.516	231	0.069	215	0.757	227	0.583	227	6.516	254	1.8
182	0.160	198	1.048	191	1.155	239	5.163	183	0.160	196	1.048	189	1.155	238	5.163	—	NA
185	0.150	225	0.643	272	0.265	259	3.522	186	0.150	224	0.643	270	0.265	259	3.522	134	11.2
244	0.060	161	2.018	259	0.351	182	16.69	244	0.060	159	2.018	257	0.351	178	16.69	179	5.7
232	0.069	221	0.678	302	0.159	276	2.581	232	0.069	219	0.678	300	0.159	275	2.581	170	6.6
206	0.106	211	0.797	241	0.496	228	6.571	205	0.106	208	0.797	239	0.496	226	6.571	241	2.1
299	0.021	253	0.328	320	0.116	291	2.180	300	0.021	253	0.328	318	0.116	290	2.180	127	12.6
199	0.115	185	1.298	255	0.376	252	3.971	199	0.115	183	1.298	253	0.376	252	3.971	247	2.0
329	0.014	61	19.54	342	0.073	53	349.4	329	0.014	57	19.54	341	0.073	47	349.4	299	0.9
153	0.289	327	0.073	116	5.403	361	0.219	152	0.289	327	0.073	108	5.403	360	0.219	126	12.6
250	0.051	191	1.212	192	1.152	195	11.52	250	0.051	189	1.212	190	1.152	193	11.52	317	0.5
186	[79]0.147	197	[79]1.057	193	1.149	187	14.37	187	[79]0.147	195	[79]1.057	191	1.149	185	14.37	318	[79]0.5
191	0.136	322	0.084	155	2.052	281	2.458	192	0.136	322	0.084	150	2.052	280	2.458	233	2.4
223	0.083	214	0.790	198	1.085	167	22.41	223	0.083	211	0.790	197	1.085	162	22.41	118	13.9
190	0.137	264	0.259	183	1.474	245	4.592	191	0.137	264	0.259	181	1.474	244	4.592	278	1.4
184	0.150	280	0.178	204	1.012	312	1.179	185	0.150	280	0.178	203	1.012	311	1.179	269	1.6
180	0.163	192	1.205	194	1.147	199	10.72	181	0.163	190	1.205	192	1.147	197	10.72	183	5.4
286	0.027	231	0.591	328	0.103	274	2.731	286	0.027	231	0.591	326	0.103	273	2.731	173	6.3
111	0.697	183	1.355	110	5.973	211	9.058	104	0.697	181	1.355	103	5.973	208	9.058	27	164.0
152	0.298	219	0.694	153	2.211	220	7.570	151	0.298	217	0.694	148	2.211	218	7.570	300	0.9
193	0.128	201	1.030	235	0.536	230	6.473	213	0.099	198	1.009	233	0.536	228	6.473	291	1.1
202	0.111	182	1.391	186	1.423	133	42.34	206	0.105	220	0.672	186	1.218	266	3.090	222	2.9
196	0.122	181	1.399	165	1.816	203	10.30	196	0.122	179	1.399	161	1.816	200	10.30	223	2.9
229	0.073	184	1.326	271	[82]0.271	197	[82]11.11	229	0.073	182	1.326	269	[82]0.271	195	[82]11.11	162	8.0
316	0.016	190	1.222	307	0.142	192	12.81	316	0.016	188	1.222	305	0.142	190	12.81	194	4.3
219	0.089	246	0.416	216	0.766	258	3.537	219	0.089	246	0.416	215	0.766	258	3.537	283	1.3
216	0.092	251	0.328	199	1.079	246	4.578	216	0.092	251	0.328	198	1.079	245	4.578	324	0.4
241	0.061	239	0.522	224	0.664	202	10.33	241	0.061	239	0.514	223	0.659	210	9.010	329	0.3
108	0.724	187	1.273	135	3.635	234	5.936	102	0.724	185	1.273	130	3.635	232	5.936	136	11.0
98	0.872	108	5.958	97	7.035	127	47.04	93	0.872	104	5.958	88	7.035	122	47.04	—	—
166	0.236	202	0.910	177	1.560	205	9.727	164	0.236	200	0.910	175	1.560	202	9.727	205	3.7
230	0.070	216	0.766	243	0.484	177	17.53	230	[8]0.070	214	[8]0.766	241	[8]0.484	173	[8]17.53	267	1.6
272	0.033	220	0.679	236	0.533	196	11.35	272	0.033	218	0.679	234	0.533	194	11.35	176	5.8
234	0.067	207	0.807	228	0.584	201	10.56	234	0.067	205	0.807	226	0.584	199	10.56	140	10.7
—	—	224	0.647	—	—	304	1.411	—	—	223	0.647	—	—	303	1.411	295	1.0
213	0.098	169	1.841	219	0.726	180	17.05	290	0.026	199	0.943	328	0.102	215	8.397	290	1.1
211	0.101	236	0.534	238	0.508	248	4.331	211	0.101	236	0.534	236	0.508	247	4.331	334	0.3
169	0.213	208	0.807	185	1.458	208	9.158	168	0.213	206	0.807	183	1.458	205	9.158	218	3.1
239	0.063	296	0.134	176	1.576	173	20.47	239	0.063	296	0.134	174	1.576	169	20.47	296	1.0
284	0.027	295	0.137	306	0.150	255	3.623	284	0.027	295	0.137	304	0.150	255	3.623	226	2.8
339	0.011	262	0.264	330	0.102	330	0.839	339	0.011	262	0.264	329	0.102	328	0.839	236	2.3
276	0.032	228	0.617	298	0.173	236	5.710	276	0.032	227	0.617	296	0.173	235	5.710	248	2.0
267	0.037	238	0.523	233	0.551	225	6.977	267	0.037	238	0.523	231	0.551	223	6.977	163	7.8
243	0.060	263	0.261	158	1.977	231	6.217	243	0.060	263	0.261	153	1.977	229	6.217	313	0.6
179	0.167	199	1.040	227	0.636	216	8.567	180	0.167	197	1.040	225	0.636	214	8.567	203	3.7
364	0.004	354	0.030	301	0.164	227	6.580	364	0.004	354	0.030	299	0.164	225	6.580	—	—
296	0.022	307	0.106	285	0.220	299	1.686	297	0.022	307	0.106	283	0.220	298	1.686	146	9.8

Rank by total assets 1985	Rank by total assets 1984	Company	Total assets $000	Total revenue Rank	Total revenue $000	Net income Rank	Net income $000	Stockholders' equity Rank	Stockholders' equity $000	Capital & Ex spending Rank
256	319	**Usenco Inc.**[56]	14,626	227	7,908	108	3,640	242	4,365	228
257	257	**Chaparral Resources Inc.**[61]	14,127	351	777	135	1,311	182	11,521	303
258	—	**Michigan Oil Co.**[24,85]	14,031	238	6,712	331	[4](5,567)	—	NA	153
259	261	**Pyramid Oil Co.**	13,458	209	10,320	222	(154)	183	11,436	236
260	—	**Oakridge Energy Inc.**[86]	13,316	279	3,227	231	(240)	248	4,080	232
261	271	**Vermilion Bay Land Co.**[36]	13,158	243	6,303	130	1,771	186	10,928	244
262	234	**Strata Corp.**	13,059	226	7,972	337	(8,764)	268	2,645	—
263	269	**Dietrich Resources Corp.**[38]	12,725	275	3,483	268	(879)	227	6,071	300
264	265	**Permian Basin Royalty Trust**	12,601	133	50,988	39	50,395	199	[27]8,346	—
265	—	**Petromark Resources Co.**[87]	12,500	304	[88]2,009	249	[88](605)	214	7,070	296
266	286	**Newhall Resources**	12,106	200	13,339	93	5,746	190	[18]9,933	206
267	256	**General Hydrocarbons Inc.**	12,097	310	1,909	292	(1,554)	247	4,247	330
268	210	**Petrotech Inc.**	12,045	247	5,461	359	(20,828)	311	1,102	267
269	—	**Great American Partners**	11,607	291	2,481	339	(9,756)	202	[18]8,303	149
270	273	**Geodyne Resources Inc.**[86]	11,201	284	2,929	138	1,200	357	(3,854)	235
271	—	**Houston Oil Royalty Trust**	11,195	252	4,894	101	4,189	184	11,195	—
272	314	**Burkhart Petroleum Corp.**[89]	11,084	294	2,423	278	(1,118)	296	1,654	310
273	276	**Striker Petroleum Corp.**	11,050	276	3,303	164	438	197	8,663	—
274	356	**Oxford Consolidated Inc.**[90]	10,970	309	[91]1,933	315	[91](2,934)	215	7,006	—
275	309	**Energy Assets International Corp.**[36]	10,897	240	6,482	155	643	249	3,881	212
276	281	**Thor Energy Resources Inc.**[14]	10,679	244	6,178	152	737	216	6,998	249
277	297	**Nahama & Weagant Energy Co.**[14]	10,472	270	3,682	186	163	245	4,284	225
278	—	**Hanna Petroleum Co.**[92]	10,283	283	2,948	322	(4,063)	—	NA	185
279	266	**Altex Industries Inc.**[7,93]	10,270	274	3,601	319	(3,440)	196	8,680	287
280	280	**GeoResources Inc.**	10,025	258	4,554	160	464	225	6,359	283
281	290	**JM Resources Inc.**[24]	9,902	297	2,301	161	449	273	2,418	217
282	274	**Golden Oil Co.**[24]	9,586	261	4,329	212	(113)	236	5,235	276
283	—	**Amcole Energy Corp.**[24]	9,018	255	4,783	248	(597)	310	1,138	265
284	258	**Great Eastern Energy & Development Corp.**	8,837	286	2,690	345	(11,958)	257	3,259	216
285	298	**Evergreen Resources Inc.**[36]	8,780	341	929	267	(867)	220	6,820	238
286	—	**Dorchester Hugoton Ltd.**	8,744	302	2,072	150	767	198	[18]8,476	353
287	308	**Cobb Resources Corp.**[24]	8,522	250	4,968	133	1,424	239	4,755	215
288	254	**Cibola Energy Corp.**	8,518	271	3,655	335	(7,208)	277	2,317	263
289	270	**Greenwood Resources Inc.**[94]	8,437	298	2,290	298	(2,035)	280	2,231	321
290	305	**Panhandle Royalty Co.**[7]	8,111	266	3,928	139	1,185	241	4,390	200
291	304	**Alta Energy Corp.**[24]	8,109	296	2,341	218	(143)	295	1,675	258
292	279	**Deca Energy Corp.**[36]	7,984	336	1,007	307	(2,451)	213	7,303	262
293	295	**Gerber Energy International Inc.**	7,781	290	2,503	245	(479)	240	4,733	273
294	311	**Mustang Drilling & Exploration Inc.**	7,676	259	4,529	163	446	229	5,986	260
295	300	**Credo Petroleum Corp.**[56]	7,557	333	1,029	179	266	222	6,615	320
296	301	**Centennial Petroleum Inc.**[36]	7,501	308	1,951	304	(2,385)	354	(1,862)	253
297	306	**Enex Resources Corp.**	7,435	267	3,842	148	830	226	6,301	312
298	310	**QED Exploration Inc.**[61]	7,427	269	3,720	144	1,017	231	5,641	241
299	277	**Peninsula Resources Corp.**[94]	7,385	263	4,160	326	(4,568)	364	(16,779)	338
300	291	**Henry Energy Corp.**[24]	7,156	245	6,033	274	(958)	244	4,308	250
301	364	**U.S. Minerals Exploration Co.**[38,95]	6,999	356	672	210	(96)	217	6,942	331
302	303	**Bayou Resources Inc.**	6,970	278	3,257	176	276	261	3,085	275
303	312	**Prima Energy Corp.**[24]	6,539	299	2,179	173	316	234	5,366	315
304	—	**Northstar Minerals Inc.**[24]	6,521	311	1,878	191	101	298	1,542	322
305	293	**Whiting Petroleum Corp.**	6,010	300	2,151	309	(2,489)	235	5,278	256
306	294	**South Texas Drilling & Exploration Inc.**	5,917	248	5,184	297	(2,035)	351	(1,171)	336

Worl liq —pro		Worldwide natural gas —production—		Worldwide liquids —reserves—		Worldwide natural gas —reserves—		U.S. liquids —production—		U.S. natural gas —production—		U.S. liquids —reserves—		U.S. natural gas —reserves—		U.S. net wells —drilled—	
Rank	ill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Mill bbl	Rank	Bcf	Rank	Wells
287	0.026	303	0.122	171	1.706	235	5.719	287	0.026	303	0.122	169	1.706	234	5.719	213	3.3
321	0.015	323	0.082	283	0.227	210	9.063	321	0.015	323	0.082	281	0.227	207	9.063	325	0.4
194	0.126	210	0.797	200	1.072	218	7.675	195	0.123	230	0.596	199	1.051	233	5.891	139	10.8
155	0.281	316	0.097	169	1.727	332	0.755	155	0.281	316	0.097	166	1.727	330	0.755	105	19.0
285	0.027	232	0.586	319	0.117	178	17.35	285	0.027	232	0.586	317	0.117	174	17.35	245	2.0
203	0.111	230	0.605	206	0.925	243	4.862	202	0.111	229	0.605	205	0.925	242	4.862	221	3.0
259	0.044	233	0.549	274	0.252	251	4.005	259	0.044	233	0.549	272	0.252	250	4.005	234	2.3
225	0.081	247	0.406	220	0.718	262	3.395	225	0.081	247	0.406	218	0.718	262	3.395	262	1.7
72	1.657	114	5.310	49	26.44	111	78.56	61	1.657	108	5.310	41	26.44	102	78.56	—	NA
247	[88]0.053	256	[88]0.315	231	0.568	275	2.721	247	[88]0.053	256	[88]0.315	229	0.568	274	2.721	257	[88]1.8
174	0.198	159	2.232	181	1.498	170	21.26	173	0.198	157	2.232	179	1.498	165	21.26	128	12.3
273	0.033	249	0.386	262	0.327	212	9.051	273	0.033	249	0.386	260	0.327	209	9.051	279	1.4
189	0.141	229	0.615	211	0.814	217	7.763	190	[6]0.141	228	[6]0.615	210	[6]0.814	216	[6]7.763	231	2.5
270	0.036	248	0.389	279	0.238	242	4.901	270	0.036	248	0.389	277	0.238	241	4.901	—	NA
289	0.026	245	0.417	284	0.226	284	2.350	289	0.026	245	0.417	282	0.226	283	2.350	261	1.7
263	0.040	195	1.121	296	0.178	249	4.091	263	0.040	193	1.121	294	0.178	248	4.091	250	1.9
281	0.028	265	0.254	248	0.435	241	5.094	281	0.028	265	0.254	246	0.435	240	5.094	228	2.7
197	0.120	337	0.059	130	4.091	365	0.167	197	0.120	337	0.059	124	4.091	365	0.167	175	6.0
—	NA	—	NA	—	NA	—	NA	—	NA	—	NA	—	NA	—	NA	—	NA
226	0.081	287	0.149	237	0.523	260	3.455	226	0.081	287	0.149	235	0.523	260	3.455	—	—
313	0.017	286	0.156	361	0.046	300	1.607	313	0.017	286	0.156	360	0.046	299	1.607	270	1.5
288	0.026	269	0.237	267	0.294	278	2.556	288	0.026	269	0.237	265	0.294	277	2.556	165	7.6
240	0.063	243	0.449	218	0.741	271	2.893	240	0.063	243	0.449	217	0.741	270	2.893	151	8.9
242	0.061	334	0.061	250	0.399	357	0.297	242	0.061	334	0.061	248	0.399	355	0.297	342	0.2
214	0.097	340	0.058	212	0.813	346	0.454	214	0.097	340	0.058	211	0.813	344	0.454	184	5.4
238	0.063	313	0.098	167	1.758	295	1.811	238	0.063	313	0.098	164	1.758	294	1.811	309	0.7
208	0.103	240	0.514	170	1.710	273	2.798	208	0.103	240	0.514	167	1.710	272	2.798	155	8.5
304	0.019	289	0.146	270	0.273	266	3.121	305	0.019	289	0.146	268	0.273	265	3.121	—	—
246	0.054	319	0.090	269	0.289	342	0.572	246	0.054	319	0.090	267	0.289	340	0.572	156	8.5
290	0.025	308	0.105	208	0.851	288	2.275	291	0.025	308	0.105	207	0.851	287	2.275	201	3.9
—	—	116	5.277	—	—	87	121.0	—	—	110	5.277	—	—	80	121.0	—	—
204	0.109	282	0.175	157	2.020	257	3.576	203	0.109	282	0.175	152	2.020	257	3.576	204	3.7
221	0.084	268	0.246	242	0.490	301	1.568	221	0.084	268	0.246	240	0.490	300	1.568	—	NA
249	0.052	250	0.376	275	0.248	283	2.431	249	0.052	250	0.376	273	0.248	282	2.431	322	0.4
292	0.025	205	0.857	287	[82]0.208	223	[82]7.274	293	0.025	203	0.857	285	[82]0.208	221	[82]7.274	189	4.8
255	0.049	292	0.145	252	0.391	270	2.908	255	0.049	292	0.145	250	0.391	269	2.908	232	2.4
293	0.024	325	0.077	303	0.157	322	0.925	294	0.024	325	0.077	301	0.157	320	0.925	229	2.7
269	0.036	297	0.134	222	0.669	321	0.970	269	0.036	297	0.134	220	0.669	319	0.970	323	0.4
275	0.032	242	0.449	294	0.189	250	4.033	275	0.032	242	0.449	292	0.189	249	4.033	197	4.2
333	0.013	349	0.045	366	0.041	297	1.726	333	0.013	349	0.045	365	0.041	296	1.726	192	4.4
262	0.041	298	0.130	244	0.475	298	1.701	262	0.041	298	0.130	242	0.475	297	1.701	224	2.9
26	0.038	244	0.440	292	0.196	247	4.494	266	0.038	244	0.440	290	0.196	246	4.494	345	0.1
2	0.103	272	0.227	251	0.397	305	1.375	209	0.103	272	0.227	249	0.397	304	1.375	166	7.5
3	0.015	338	0.058	347	0.068	331	0.790	325	0.015	338	0.058	346	0.068	329	0.790	326	0.4
	0.105	336	0.060	273	0.260	358	0.297	207	0.105	336	0.060	271	0.260	356	0.297	172	6.4
	0.006	375	0.007	348	0.066	366	0.162	356	0.006	375	0.007	347	0.066	366	0.162	—	NA
	0.044	212	0.793	260	0.339	198	10.80	258	0.044	209	0.793	258	0.339	196	10.80	276	1.4
	0.016	312	0.101	368	0.031	293	1.969	319	0.016	312	0.101	367	0.031	292	1.969	210	3.5
	0.008	343	0.055	323	0.111	360	0.253	347	0.008	343	0.055	321	0.111	359	0.253	211	3.4
	0.043	306	0.110	263	0.324	307	1.319	260	0.043	306	0.110	261	0.324	306	1.319	319	0.5
	0.003	335	0.060	378	0.007	338	0.639	373	0.003	335	0.060	378	0.007	336	0.639	330	0.3

OGJ 400

Rank by total assets 1985	Rank by total assets 1984	Company	Total assets $000	Total revenue Rank	Total revenue $000	Net income Rank	Net income $000	Stockholders' equity Rank	Stockholders' equity $000	Capital & spendi Rank
307	263	KRM Petroleum Corp.[96]	5,890	—	NA	—	NA	—	NA	—
308	318	Parallel Petroleum Corp.	5,830	332	1,088	237	(394)	238	4,918	292
309	287	Fossil Oil & Gas Inc.[36]	5,778	315	1,739	321	(3,622)	356	(2,928)	325
310	317	Dallas Oil & Minerals Inc.	5,712	318	1,298	185	164	230	5,645	266
311	337	Aztec Resources Corp.[36]	5,662	349	860	193	66	246	4,254	240
312	288	Intercontinental Energy Corp.[7]	5,599	254	4,824	301	(2,222)	304	1,386	299
313	307	Columbine Exploration Corp.[81]	5,247	306	1,981	281	(1,279)	346	84	307
314	326	Petra Resources Inc.[14]	5,205	285	2,801	201	(30)	260	3,124	264
315	327	Falcon Oil & Gas Co. Inc.[14]	5,034	325	1,199	172	331	262	3,062	304
316	336	Roberts Oil & Gas Inc.[38]	4,692	342	912	220	(151)	253	3,459	291
317	—	Wepco Energy Co.[98]	4,690	329	1,159	265	(848)	279	2,294	224
318	282	Burton/Hawks Inc.	4,532	287	2,598	327	(4,763)	258	3,180	309
319	325	Regal Petroleum Ltd.[10]	4,511	319	1,289	181	223	252	3,612	332
320	—	Appalachian Oil & Gas Co. Inc.[86]	4,460	293	2,434	157	587	270	2,546	314
321	332	Tyrex Oil Co.[24]	4,323	316	1,607	190	105	243	4,311	281
322	—	Terrapet Energy Corp.	4,321	280	3,146	338	(9,410)	361	(7,824)	167
323	—	Petrol Industries Inc.	4,259	292	2,441	168	357	251	3,617	349
324	328	Midwest Exploration Inc.[7]	4,253	323	1,257	207	(83)	286	2,031	335
325	333	NP Energy Corp.[38,82]	4,218	335	1,009	198	(6)	305	1,379	375
326	329	Lyric Energy Inc.[80]	4,211	359	633	228	(211)	292	1,717	363
327	285	Pangea Petroleum Co.	4,171	303	2,028	329	(4,839)	314	1,022	334
328	313	Marlin Oil Co.[80,94]	4,145	331	1,120	303	(2,339)	350	(893)	259
329	302	Eagle Exploration Co.[38]	4,060	307	1,971	314	(2,917)	355	(2,613)	318
330	345	Energy Capital Development Corp.	4,054	369	470	289	(1,450)	290	1,793	294
331	321	Newport Petroleums Inc.[14,89]	4,037	321	1,273	280	(1,187)	264	2,783	254
332	340	Blackgold Energy Resources Inc.[36]	4,015	345	886	174	312	287	1,970	278
333	320	Circle Seven Oil & Gas Inc.[38]	3,980	324	1,228	279	(1,169)	294	1,679	219
334	316	Melton Drilling & Exploration Co.	3,958	295	2,382	282	(1,282)	271	2,488	350
335	353	Southern Mineral Corp.	3,924	289	2,511	142	1,083	266	2,721	340
336	351	Albion International Resources Inc.	3,810	328	1,170	196	27	291	1,761	290
337	—	Pantepec International Inc.	3,799	395	109	288	(1,449)	250	3,620	308
338	358	Western Natural Gas Co.	3,797	352	746	285	(1,359)	263	2,866	221
339	346	Hubco Exploration Inc.	3,662	313	1,805	214	(121)	308	1,162	257
340	341	Crescent Oil & Gas Corp.[7]	3,647	371	421	208	(92)	254	3,346	361
341	348	Reserve Exploration Co.[38]	3,607	337	1,000	225	(197)	272	2,471	233
342	—	Nova Petroleum Corp.[6]	3,605	343	911	261	(743)	321	869	378
343	331	Aspen Exploration Co.[24]	3,547	353	719	236	(394)	259	3,135	351
344	—	Colorado Energy Corp.[86]	3,514	326	1,198	175	291	274	2,388	343
345	350	Plano Petroleum Corp.[7]	3,482	344	891	187	141	256	3,275	286
346	323	Arch Petroleum Inc.[101]	3,428	314	1,749	254	(650)	265	2,756	298
347	396	Crown Resource Corp.	3,395	346	875	230	(224)	255	3,315	316
348	354	Toklan Oil Corp.[10]	3,344	317	1,456	219	(150)	275	2,378	324
349	—	Hipoint Investments Ltd.	3,320	347	874	295	(1,922)	365	(17,897)	—
350	—	Polaris Resources Inc.[102]	3,304	213	9,472	262	(794)	323	811	370
351	299	Kee Exploration Inc.	3,296	334	1,020	324	(4,174)	327	658	306
352	322	Intramerican Oil & Minerals Inc.	3,251	320	1,279	286	(1,377)	306	1,367	311
353	315	Great American Resources Inc.	3,137	348	860	290	(1,467)	303	1,445	364
354	—	Endevco Inc. (Expl. & Prod. Segment)[28]	3,121	394	112	195	[4]41	—	NA	223
355	349	Double Eagle Petroleum & Mining Co.[10]	3,029	312	1,854	158	501	267	2,661	313
356	330	Reef Energy Corp.	2,850	301	2,077	260	(721)	318	879	285
357	399	Questa Oil & Gas Co.[103]	2,803	327	1,183	177	268	302	1,456	319

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Worldwide liquids production Rank	Mill bbl	Worldwide natural gas production Rank	Bcf	Worldwide liquids reserves Rank	Mill bbl	Worldwide natural gas reserves Rank	Bcf	U.S. liquids production Rank	Mill bbl	U.S. natural gas production Rank	Bcf	U.S. liquids reserves Rank	Mill bbl	U.S. natural gas reserves Rank	Bcf	U.S. net wells drilled Rank	Wells
—	NA	—	NA	—	NA	—	NA	—	NA	—	NA	—	NA	—	NA	—	NA
335	0.011	274	0.217	268	0.292	289	2.257	335	0.011	274	0.217	266	0.292	288	2.257	238	2.2
312	0.017	252	0.328	337	0.088	290	2.238	312	0.017	252	0.328	336	0.088	289	2.238	344	0.1
327	0.014	270	0.236	334	0.090	310	1.280	327	0.014	270	0.236	333	0.090	309	1.280	217	3.2
302	0.020	330	0.068	313	0.132	308	1.300	303	0.020	330	0.068	311	0.132	307	1.300	—	NA
257	0.046	301	0.123	295	0.179	329	0.851	257	0.046	301	0.123	293	0.179	327	0.851	333	0.3
254	0.049	311	0.101	234	0.546	277	2.573	254	0.049	311	0.101	232	0.546	276	2.573	239	2.2
323	0.015	339	0.058	300	0.166	340	[97]0.608	323	0.015	339	0.058	298	0.166	338	[97]0.608	190	4.7
342	0.010	258	0.284	333	0.091	188	14.14	342	0.010	258	0.284	332	0.091	186	14.14	311	0.6
303	0.020	317	0.094	340	0.074	286	2.298	304	0.020	317	0.094	339	0.074	285	2.298	336	0.2
311	0.017	278	0.196	299	0.166	294	1.912	311	0.017	278	0.196	297	0.166	293	1.912	340	0.2
222	0.083	291	0.145	195	1.127	261	3.427	222	0.083	291	0.145	194	1.127	261	3.427	281	1.3
283	0.027	288	0.148	291	[82]0.200	296	[82]1.748	283	0.027	288	0.148	289	[82]0.200	295	[82]1.748	237	2.2
377	0.001	318	0.091	346	0.069	191	12.94	377	0.001	318	0.091	345	0.069	189	12.94	182	5.5
332	0.013	387	(s)	359	0.048	376	0.085	332	0.013	387	(s)	358	0.048	376	0.085	255	1.8
253	0.050	223	0.668	308	0.141	280	2.507	253	0.050	222	0.668	306	0.141	279	2.507	—	—
217	0.090	362	0.016	102	6.493	347	0.447	217	0.090	362	0.016	95	6.493	345	0.447	—	—
268	0.037	299	0.124	384	0.003	350	0.435	268	0.037	299	0.124	384	0.003	348	0.435	337	0.2
378	0.001	300	0.123	375	0.012	263	3.233	378	0.001	300	0.123	374	0.012	263	3.233	—	—
348	0.008	320	0.086	326	0.107	224	7.116	348	0.008	320	0.086	324	0.107	222	7.116	306	0.8
277	0.031	241	0.463	249	0.419	254	3.712	277	0.031	241	0.463	247	0.419	254	3.712	305	0.8
282	0.028	328	0.072	304	0.152	315	1.093	282	0.028	328	0.072	302	0.152	314	1.093	208	3.5
274	0.033	275	0.217	318	0.118	339	0.630	274	0.033	275	0.217	316	0.118	337	0.630	298	1.0
363	0.004	324	0.080	261	0.337	204	9.741	363	0.004	324	0.080	259	0.337	201	9.741	—	—
310	0.018	285	0.157	325	0.107	327	0.894	310	0.018	285	0.157	323	0.107	325	0.894	214	3.3
320	0.015	329	0.068	203	1.014	213	8.706	320	0.015	329	0.068	202	1.014	211	8.706	212	3.4
351	0.008	315	0.097	371	0.022	325	0.901	351	0.008	315	0.097	370	0.022	323	0.901	180	5.6
361	0.005	358	0.023	360	0.047	363	0.199	361	0.005	358	0.023	359	0.047	363	0.199	328	0.3
326	0.015	314	0.097	357	0.049	285	2.334	326	0.015	314	0.097	356	0.049	284	2.334	285	1.3
314	0.016	345	0.048	253	0.382	309	1.300	314	0.016	345	0.048	251	0.382	308	1.300	350	0.1
381	0.001	368	0.011	381	0.005	316	1.052	381	0.001	368	0.011	381	0.005	358	0.257	277	1.4
344	0.010	294	0.141	343	0.073	326	0.897	344	0.010	294	0.141	342	0.073	324	0.897	—	NA
265	0.039	276	0.212	293	0.194	303	1.444	265	0.039	276	0.212	291	0.194	302	1.444	310	0.7
360	0.005	309	0.102	329	0.103	268	3.038	360	0.005	309	0.102	327	0.103	268	3.038	294	1.0
278	0.031	360	0.022	254	0.379	343	0.559	278	0.031	360	0.022	252	0.379	341	0.559	188	4.9
305	0.019	321	0.086	289	0.206	333	0.721	306	0.019	321	0.086	287	0.206	331	0.721	259	1.7
309	0.018	356	0.028	258	0.356	337	0.653	309	0.018	356	0.028	256	0.356	335	0.653	343	0.2
330	0.014	290	0.146	354	0.052	292	2.089	330	0.014	290	0.146	353	0.052	291	2.089	293	1.1
306	0.019	332	0.062	309	0.139	323	0.921	307	0.019	332	0.062	307	0.139	321	0.921	216	3.2
261	0.042	279	0.191	280	0.235	306	1.342	261	0.042	279	0.191	278	0.235	305	1.342	196	4.2
279	0.031	—	—	310	0.138	—	—	279	0.031	—	—	308	0.138	—	—	—	—
315	0.016	266	0.249	305	0.152	314	1.146	315	0.016	266	0.249	303	0.152	313	1.146	240	2.2
328	0.014	304	0.120	341	0.074	341	0.607	328	0.014	304	0.120	340	0.074	339	0.607	347	0.1
354	0.007	371	0.010	351	0.063	378	0.080	354	0.007	371	0.010	350	0.063	378	0.080	—	—
298	0.021	348	0.046	281	0.232	352	0.426	299	0.021	348	0.046	279	0.232	350	0.426	264	1.7
301	0.020	259	0.275	286	0.212	269	2.988	302	0.020	259	0.275	284	0.212	251	3.988	244	2.0
355	0.007	326	0.077	363	0.045	324	0.916	355	0.007	326	0.077	362	0.045	322	0.916	—	NA
—	NA	—	NA	—	[28]NA	—	[28]NA	—	NA	—	NA	—	[28]NA	—	[28]NA	—	NA
248	0.052	331	0.063	256	0.374	311	1.222	248	0.052	331	0.063	254	0.374	310	1.222	282	1.3
295	0.023	267	0.247	331	[82]0.100	313	[82]1.159	296	0.023	267	0.247	330	[82]0.100	312	[82]1.159	260	1.7
358	0.006	273	0.221	362	0.046	282	2.435	358	0.006	273	0.221	361	0.046	281	2.435	—	NA

Rank by total assets 1985	Rank by total assets 1984	Company	Total assets $000	Total revenue Rank	Total revenue $000	Net income Rank	Net income $000	Stockholders' equity Rank	Stockholders' equity $000	Capital spe Rank
358	386	**Roseland Oil & Gas Co. Inc.**[14]	2,712	338	967	171	331	322	829	305
359	338	**States Exploration Ltd.**[38,104]	2,697	354	715	299	(2,183)	281	2,145	295
360	334	**Love Oil Co. Inc.**[38]	2,635	380	274	272	(929)	269	2,574	301
361	—	**Exploration Co.**[10]	2,621	373	403	253	(650)	284	2,102	226
362	339	**Search Natural Resources Inc.**[86]	2,433	375	357	251	(616)	276	2,319	328
363	360	**Sunbelt Exploration Inc.**[10]	2,314	355	673	205	(78)	300	1,472	356
364	365	**Wicklund Petroleum Corp.**	2,285	339	953	209	(92)	301	1,467	347
365	361	**Impact Energy Inc.**	2,261	370	452	232	(308)	282	2,141	346
366	335	**Belcor Inc.**[58,105]	2,220	340	943	293	(1,688)	307	1,346	380
367	—	**Willard Pease Oil & Gas Co.**	2,170	322	1,271	169	352	317	879	323
368	352	**Oil City Petroleum Inc.**[10]	2,164	357	661	283	(1,320)	328	613	358
369	363	**Tide West Oil Co.**[86]	2,083	381	262	247	(538)	285	2,054	271
370	—	**Diablo Oil Co.**[81]	1,977	374	388	242	(455)	297	1,598	348
371	374	**Big Piney Oil & Gas Co.**	1,913	361	552	192	98	289	1,832	368
372	369	**Trans Atlantic Resource Corp.**[24]	1,870	330	1,136	256	(661)	329	604	342
373	362	**Cheyenne Resources Inc.**	1,834	368	474	264	(833)	312	1,090	337
374	376	**Sharon Energy Ltd.**[38]	1,815	378	317	246	(488)	348	(17)	355
375	—	**Yellowstone Resources Inc.**	1,771	377	334	213	(115)	293	1,700	329
376	379	**EMC Energies Inc.**[24]	1,720	350	851	226	(202)	324	795	327
377	324	**Ridgeway Exco Inc.**	1,520	360	579	308	(2,480)	319	877	284
378	372	**Loch Exploration Inc.**	1,382	382	258	206	(78)	347	47	379
379	385	**Pioneer Oil & Gas Corp.**[7]	1,359	358	636	189	115	309	1,151	344
380	382	**Wyoming Oil & Minerals Inc.**[86]	1,206	376	338	203	(36)	326	696	352
381	389	**Bolyard Oil & Gas Ltd.**[80]	1,135	367	478	194	53	332	551	371
382	392	**TPEX Exploration Inc.**[24]	1,129	372	416	239	(429)	336	440	297
383	378	**Tri-Valley Oil & Gas Corp.**[81]	1,104	365	503	211	(108)	340	309	365
384	384	**Mountain States Resources Corp.**[38]	1,033	391	144	241	(449)	341	284	372
385	381	**Amacan Resources Corp.**[80]	1,019	364	524	215	(124)	315	966	366
386	390	**Golden Triangle Royalty Co.**	949	396	90	224	(192)	316	939	354
387	358	**Calvin Exploration Inc.**[7]	904	379	293	296	(1,971)	333	486	341
388	387	**Score Exploration Corp.**[24]	898	393	141	229	(220)	320	871	360
389	368	**Amber Resources Co.**	826	362	539	270	(898)	325	758	373
390	377	**PETX Petroleum Corp.**[24]	800	363	532	263	(830)	344	91	339
391	391	**Bronco Oil & Gas Co.**[7]	792	385	184	235	(359)	353	(1,763)	381
392	394	**Black Giant Oil Co.**[38]	766	390	154	217	(143)	330	570	357
393	380	**Shaw Resources Inc.**[38]	689	388	163	240	(431)	331	562	376
394	393	**Energy Production Co.**	497	383	237	238	(397)	339	378	369
395	—	**Texas Vanguard Oil Co.**	496	384	195	227	(204)	337	424	345
396	400	**Petroleum Land Corp.**[58,94,107]	473	389	159	204	(56)	342	237	—
397	395	**Imperial Energy Corp.**[7]	458	386	182	234	(323)	335	454	359
398	397	**Houston Oil & Energy Inc.**[24]	444	397	65	221	(152)	338	394	367
399	—	**Sterling Oil of Oklahoma Inc.**	270	387	163	156	617	343	236	362
400	—	**Pan Energy Resources Inc.**[24,94]	179	392	142	202	(32)	345	89	—
		Totals	**542,225,084**		**572,178,934**		**16,507,657**		**182,251,930**	**66,00**

NA = Not available. (s) = indicates less than 500 bbl. or 500 Mcf. Fiscal yearend is Dec. 31 unless otherwise noted. 1. Subsidiary of USX (formerly U.S. Steel Corp.). 2. Operating income after foreign income taxes. 3. Subsidiary of E.I. duPont de Nemours Corp. 4. Operating income after tax. 5. Formerly HNG/InterNorth, after purchase of Houston Natural Gas Corp. by InterNorth Inc. 6. May include insignificant amounts of foreign production and reserves. 7. Fiscal yearend Sept. 30. 8. Adopted "successful efforts" accounting in 1985. 9. Transco Energy Co. owns 72% of outstanding units of Transco Exploration Partners Ltd. Most of the production and reserves figures listed for the partnership are also included in the figures for the corporation. 10. Fiscal yearend Aug. 31. 11. Since fiscal yearend has been purchased by USX (formerly U.S. Steel Corp.). 12. Subsidiary of Union Pacific Corp. 13. Subsidiary of Burlington Northern Inc.; figures exclude Southland Royalty Co. which was purchased Dec. 1985. 14. Fiscal yearend Jan. 31. 15. Includes Canadian wells. 16. Formerly a wholly owned subsidiary of Allied Corp., became independent after a leveraged buyout mid-1985. 17. Mesa Petroleum Co. transferred all oil & gas properties to the partnership in Dec. 1985. Remaining assets and liabilities will be disposed of in 1986. 18. Partner's equity. 19. Filed Chapter 11 Jan. 1986. 20. Murphy Oil Corp. owns 59.5% of the outstanding stock. 21. Subsidiary of W.R. Grace Co. 22. Subsidiary of Goodyear Tire and Rubber Co. 23. Subsidiary of Sante Fe Southern Pacific Corp. 24. Fiscal yearend June 30. 25. Organized December 31, 198
former partnerships sponsored by Petro Lewis Inc. 26. Trust corpus. 27. Six months
June 30. 28. Company holds oil and gas reserves within the U.S. but is not required to di
them under Securities and Exchange commission rules. 29. Formerly Montana Dakota U
Co. 30. Since fiscal yearend has agreed to merge with Mesa Limited Partnership. 31
chased Dyco Petroleum Corp. Oct. 1985. 32. Partnership which operates Enstar
Partnership is owned by Union Texas Petroleum Holding, Inc. and Ultramar PLC but op
independently. 33. Net savings. 34. Member's and patron's equity. 35. Since fiscal ye
Inexco has entered into a merger agreement with Louisiana Land & Exploration. 36.
yearend Mar. 31. 37. Acquired Woods Petroleum Corp. July 1985. 38. Fiscal yearen
31. 39. Subsidiary of Broken Hill Proprietary Co. Ltd. 40. Five months ended May
41. Result of merger of Adobe Oil and Gas Corp. and Madison Resources Inc. Figures d
include High Plains Oil Corp., purchased Dec. 1985. 42. Purchased by Burlington Nor
Inc. Dec. 1985. 43. Subsidiary of CSX Corp. 44. Subsidiary of Home Oil Corp. 45
margins. 46. Stockholder's and member's equity. 47. Subsidiary of Angeles Corp. 48.
sidiary of Houston Industries. 49. Division of DeKalb Corp. 50. Operating income b
interest and corporate income tax. 51. Purchased Amarex Inc. Dec. 1985. 52. Subsidia

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Expl. g — 000	Worldwide liquids production Rank	Mill bbl	Worldwide natural gas production Rank	Bcf	Worldwide liquids reserves Rank	Mill bbl	Worldwide natural gas reserves Rank	Bcf	U.S. liquids production Rank	Mill bbl	U.S. natural gas production Rank	Bcf	U.S. liquids reserves Rank	Mill bbl	U.S. natural gas reserves Rank	Bcf	U.S. net wells drilled Rank	Wells
64	337	0.011	302	0.123	321	0.116	351	0.430	337	0.011	302	0.123	319	0.116	349	0.430	150	9.0
86	294	0.023	370	0.011	288	0.207	373	0.104	295	0.023	370	0.011	286	0.207	373	0.104	304	0.8
73	362	0.005	383	0.004	369	0.031	—	—	362	0.005	383	0.004	368	0.031	—	—	289	1.1
2,46	345	0.010	350	0.043	355	0.052	344	0.515	345	0.010	350	0.043	354	0.052	342	0.515	316	0.5
45	334	0.012	—	—	240	0.497	—	—	334	0.012	—	—	238	0.497	—	—	307	0.7
12	386	(s)	310	0.102	386	0.003	302	1.474	386	(s)	310	0.102	386	0.003	301	1.474	314	0.6
18	350	0.008	281	0.176	353	0.053	317	1.039	350	0.008	281	0.176	352	0.053	315	1.039	219	3.0
18	331	0.013	376	0.007	316	0.123	—	—	331	0.013	376	0.007	314	0.123	—	—	274	1.5
5	324	0.015	367	0.012	311	0.137	388	0.014	324	0.015	367	0.012	309	0.137	388	0.014	230	2.5
515	271	0.034	283	0.172	232	0.556	267	3.039	271	0.034	283	0.172	230	0.556	267	3.039	263	1.7
95	300	0.020	385	0.002	276	0.244	383	0.043	301	0.020	385	0.002	274	0.244	383	0.043	220	3.0
1,196	353	0.007	379	0.005	350	0.065	370	0.137	353	0.007	379	0.005	349	0.065	370	0.137	215	3.3
163	346	0.009	347	0.047	339	0.075	345	0.510	346	0.009	347	0.047	338	0.075	343	0.510	302	0.9
67	—	—	255	0.326	389	0.001	279	2.531	—	—	255	0.326	389	0.001	278	2.531	292	1.1
247	367	0.004	380	0.005	374	0.012	384	0.033	367	0.004	380	0.005	373	0.012	384	0.033	284	1.3
301	336	0.011	357	0.026	315	0.127	348	0.443	336	0.011	357	0.026	313	0.127	346	0.443	341	0.2
128	375	0.002	342	0.057	379	0.007	320	0.980	375	0.002	342	0.057	379	0.007	318	0.980	280	1.3
438	340	0.011	369	0.011	336	0.089	368	0.152	340	0.011	369	0.011	335	0.089	368	0.152	251	1.9
478	322	0.015	346	0.047	297	0.178	334	0.689	322	0.015	346	0.047	295	0.178	332	0.689	315	0.5
971	307	0.019	372	0.009	338	0.078	354	0.352	308	0.019	372	0.009	337	0.078	352	0.352	271	1.5
6	352	0.007	365	0.013	332	0.093	362	0.200	352	0.007	365	0.013	331	0.093	362	0.200	—	—
210	369	0.003	—	—	349	0.066	369	0.144	369	0.003	—	—	348	0.066	369	0.144	246	2.0
131	343	0.010	384	0.002	335	0.090	336	0.667	343	0.010	384	0.002	334	0.090	334	0.667	346	0.1
39	371	0.003	341	0.057	365	0.042	265	3.138	371	0.003	341	0.057	364	0.042	264	3.138	338	0.2
798	338	0.011	344	0.050	322	0.114	353	0.402	338	0.011	344	0.050	320	0.114	351	0.402	348	0.1
78	384	(s)	293	0.142	390	0.001	328	0.861	384	(s)	293	0.142	390	0.001	326	0.861	331	0.3
27	366	0.004	381	0.004	370	0.028	387	0.020	366	0.004	381	0.004	369	0.028	387	0.020	—	—
70	318	0.016	353	0.038	344	0.072	356	0.299	318	0.016	353	0.038	343	0.072	354	0.299	339	0.2
129	380	0.001	374	0.008	377	[106]0.008	374	[106]0.089	380	0.001	374	0.008	376	[106]0.008	374	[106]0.089	—	NA
261	379	0.001	333	0.062	385	0.003	349	0.437	379	0.001	333	0.062	385	0.003	347	0.437	351	0.1
88	365	0.004	377	0.006	356	0.051	372	0.114	365	0.004	377	0.006	355	0.051	372	0.114	—	NA
24	372	0.003	284	0.166	373	0.013	364	0.193	372	0.003	284	0.166	372	0.013	364	0.193	—	—
289	317	0.016	355	0.029	324	0.109	367	0.161	317	0.016	355	0.029	322	0.109	367	0.161	207	3.5
5	368	0.004	363	0.016	376	0.011	381	0.065	368	0.004	363	0.016	375	0.011	381	0.065	312	0.6
118	68	1.997	109	5.910	380	[106]0.006	386	[106]0.021	56	1.907	106	5.630	380	[106]0.006	386	[106]0.021	—	—
17	—	—	—	—	312	0.135	377	0.083	—	—	—	—	310	0.135	377	0.083	327	0.4
66	357	0.006	373	0.009	358	0.049	375	0.088	357	0.006	373	0.009	357	0.049	375	0.088	349	0.1
191	370	0.003	364	0.015	352	0.057	355	0.312	370	0.003	364	0.015	351	0.057	353	0.312	199	4.0
A	382	(s)	352	0.038	364	0.044	335	0.681	382	(s)	352	0.038	363	0.044	333	0.681	—	NA
89	359	0.006	382	0.004	372	0.022	389	0.008	359	0.006	382	0.004	371	0.022	389	0.008	288	1.2
70	385	(s)	359	0.023	388	0.001	380	0.077	385	(s)	359	0.023	388	0.001	380	0.077	286	1.3
84	374	0.002	378	0.006	367	0.033	382	0.043	374	0.002	378	0.006	366	0.033	382	0.043	297	1.0
A	376	0.001	361	0.021	382	0.004	379	0.078	376	0.001	361	0.021	382	0.004	379	0.078	—	—
424		**3,867.65**		**12,763.25**		**37,701:47**		**179,797.68**		**2,417.01**		**10,090.11**		**23,554.69**		**129,258.40**		**18,944.5**

Southdown Inc. 53. Subsidiary of Kaiser Aluminum and Chemical Corp. 54. Subsidiary of Placer Development Ltd. 55. Subsidiary of Consumer's Power Co. 56. Fiscal yearend Oct. 31. 57. Subsidiary of Homestake Mining. 58. Subsidiary of Moore McCormack Resources. 59. U.S. operations only. 60. Nine months ended Dec. 31. 61. Fiscal yearend Nov. 30. 62. Operating under Chapter 11. 63. Reserves as of Oct. 31. 64. Formerly McCormick Oil and Gas Partnership. 65. Subsidiary of International Minerals and Chemicals Corp. 66. Operating income before taxes. 67. Subsidiary of Gulf Resources and Chemical Corp. 68. Subsidiary of Washington Energy, financial data includes coal and oil and gas operations. 69. Subsidiary of National Distillers and Chemical Corp. 70. Organized from other partnerships Oct. 1985. 71. Production and reserve sales. 72. Commenced operations as a public company Jan. 1, 1986 out of consolidated private partnerships. 73. Subsidiary of Brooklyn Union Gas Co. 74. Purchased by KN Energy Inc. since fiscal yearend. 75. Formed Dec. 1985. 76. Since fiscal yearend has merged with Castle Energy Corp. 77. Filed plan for liquidation Jan. 1986. 78. Previously a subsidiary of KN Energy, Inc. Became independent Sept 1985. 79. Fifteen months ending Jan. 31, 1986. Company changed fiscal yearend from Oct. 31. 80. Fiscal yearend Apr. 30. 81. Fiscal yearend July 31. 82. Proved developed reserves. 83. Became a subsidiary of Adobe Resources Corp. Dec. 27, data is as of Dec. 26. 84. Since fiscal yearend company's oil and gas activities nave been purchased by Cavenham Energy Resources, a division of Cavenham Forest Industries Inc. 85. Subsidiary of Sparton Corp. 86. Fiscal yearend Feb. 28. 87. Purchased Ike Lovelady June 13, 1986 and became public. 88. Six months ended Dec. 31. 89. Formed from merger of private Burkhart Petroleum and public Henderson Petroleum. 90. Formed from merger of Antares Oil and Oxford Exploration. Company has U.S. oil and gas reserves but figures were not available when this report was prepared. 91. Unaudited results for nine months ended Dec. 31. 92. Subsidiary of M.A. Hanna Co. 93. Formerly Altex Oil Corp. 94. Figures compiled from unaudited financial statements. 95. Bought Grayhill Exploration Co. 96. Company currently involved in merger negotiation and cannot release additional daa. 97. Includes natural gas liquids. 98. Purchased States Exploration in late 1985. Figures do not include States. 99. Since fiscal yearend has agreed to merge with Mineral Development Inc. 100. Capitalized costs from oil and gas activities. 101. Formerly Sparkman Producing Co. 102. Purchased Overthrust Resources, Ltd. 103. Since fiscal yearend has purchased Trinity Oil & Gas Inc. 104. Since fiscal yearend has been purchased by Wepco, Inc. 105. Formerly Transierra Exploration Co. 106. Working interest only, company holds royalty interest in other properties. 107. Company is changing to Dec. 31 fiscal yearend but revised data was not available when this report was prepared.

Worldwide oil and gas at a glance

	ESTIMATED PROVED RESERVES 1-1-1987		OIL PRODUCTION			REFINING Capacity (b/cd) January 1, 1987				
COUNTRY	Oil (1,000 bbl)	Gas (10^9 cu ft)	Producing wells* July 1, 86	Estimated 1986 (1,000 b/d)	% change from 1985	No. of ref.	Crude	Thermal operations	Catalytic cracking	Catalytic reforming
ASIA-PACIFIC										
Australia	1,712,800	18,680	879	472.0	−16.9	10	626,100	...	181,800	154,600
Bangladesh	...	12,710	...	...	...	1	31,200	...	...	1,650
Brunei	1,420,900	7,060	710	170.0	+12.6	1	10,000	...	...	...
Burma	58,000	9,460	445	30.0	...	2	26,300	1,700	...	...
China, Taiwan	(c)5,400	910	84	1.9	−9.5	2	542,500	17,493	22,600	51,960
India	4,202,800	17,550	2,201	622.7	+0.9	12	991,070	104,730	129,408	26,690
Indonesia	8,300,000	49,440	5,124	1,243.8	+1.5	6	635,800	81,500	...	60,700
Japan	57,000	1,090	284	12.8	+20.8	46	4,790,050	80,520	502,750	561,420
Korea, South	...	...	...	...	...	6	862,000	30,000	...	63,200
Malaysia	2,820,500	49,440	370	503.3	+16.2	4	212,300	...	...	21,410
New Zealand	(c)167,000	5,690	32	29.3	+54.2	1	54,000	...	...	26,000
Pakistan	96,000	18,700	55	41.0	+17.1	3	130,000	...	...	5,750
Papua New Guinea	(c)65,000	500	...	...	...	...	...	...	...	...
Philippines	16,900	10	10	6.3	−25.9	3	286,000	...	23,100	40,200
Singapore	...	...	...	...	...	5	961,000	133,000	...	50,600
Sri Lanka	...	...	...	...	...	1	50,000	12,500	...	3,750
Thailand	101,200	7,400	180	35.6	+1.7	3	191,860	9,600	9,250	25,300
Total Asia-Pacific	**19,023,500**	**198,640**	**10,374**	**3,168.7**	**+1.1**	**106**	**10,400,180**	**471,043**	**868,908**	**1,093,230**
WESTERN EUROPE										
Austria	76,300	420	1,609	22.2	+0.9	1	204,000	17,000	24,000	31,000
Belgium	...	...	...	...	...	4	647,500	65,500	102,000	80,300
Cyprus	...	...	...	...	...	1	16,000	...	...	3,400
Denmark	440,000	3,400	NA	74.7	+26.6	3	166,000	72,800	...	29,900
Finland	...	...	...	...	...	2	241,000	46,300	41,800	55,100
France	234,900	1,230	649	59.0	+15.7	15	1,834,050	167,400	252,300	239,300
Germany, West	316,000	6,500	3,129	80.0	−1.2	19	1,719,800	269,400	186,200	317,000
Greece	26,000	...	16	26.4	+1.5	4	384,500	19,520	27,200	31,300
Ireland	...	1,940	...	...	...	1	56,000	...	...	11,000
Italy-Sicily	721,750	8,000	220	49.0	+22.5	21	2,678,700	345,130	276,000	296,600
Netherlands	194,900	70,400	663	79.0	+11.3	7	1,400,800	148,710	125,500	150,400
Norway	10,500,000	103,180	178	823.3	+5.0	3	240,000	86,500	...	29,150
Portugal	...	...	...	...	...	3	294,300	...	10,100	35,400
Spain	28,200	800	47	37.2	−17.3	10	1,305,000	124,000	92,500	187,100
Sweden	...	...	...	...	...	5	436,500	68,000	25,500	74,000
Switzerland	...	...	...	...	...	1	65,000	24,000	...	15,000
Turkey	400,000	460	471	46.8	+11.4	4	460,475	...	38,600	45,057
United Kingdom	9,000,000	33,400	661	2,602.0	+2.8	15	1,779,700	166,000	345,500	367,500
Total Western Europe	**21,938,050**	**229,730**	**7,643**	**3,899.6**	**+3.9**	**119**	**13,929,325**	**1,620,260**	**1,547,200**	**1,998,507**
MIDDLE EAST										
Abu Dhabi	31,000,000	90,000	392	949.0	+31.8	3	185,250	...	...	29,569
Bahrain	140,000	7,000	280	44.0	+4.8	1	250,000	19,000	36,000	17,100
Dubai	1,350,000	4,400	149	350.0	+0.6	...	...	...	...	...
Iran	48,800,000	450,000	361	1,806.3	−20.0	4	530,000	80,800	...	63,845
Iraq	47,100,000	28,000	NA	1,787.7	+24.6	8	318,500	...	...	43,500
Israel	700	10	9	0.1	...	2	180,000	70,000	20,000	26,000
Jordan	...	...	...	...	...	1	100,000	...	4,410	8,640
Kuwait	91,916,000	35,000	363	1,202.0	+40.7	4	618,000	...	30,000	51,000
Lebanon	...	...	...	...	...	2	37,000	...	7,250	7,492
Neutral Zone	5,212,100	12,400	493	325.7	−7.2	...	...	...	...	...
Oman	4,032,000	7,500	736	540.8	+11.3	1	48,082	...	...	9,644
Qatar	3,154,000	152,000	174	332.3	+11.1	1	62,000	...	...	22,030
Ras al Khaimah	200,000	1,200	6	11.0	+22.2	...	...	...	...	...
Saudi Arabia	166,573,900	123,990	NA	4,719.7	+43.9	6	1,125,000	26,000	10,000	86,900
Sharjah	500,000	9,000	20	65.0	...	...	...	...	...	...
Syria	1,400,000	4,200	847	185.0	+3.9	2	228,790	41,199	...	19,348
Yemen, North	500,000	600	45	10.0	...	1	10,000	...	...	2,500
Yemen, South	...	...	...	...	...	1	170,000	...	...	12,000
Total Middle East	**401,878,700**	**925,300**	**3,875**	**12,328.6**	**+19.4**	**37**	**3,862,622**	**236,999**	**107,660**	**399,568**

EDITOR'S NOTE: All reserves figures except those for the U.S.S.R. (and gas for Canada) are reported as proved reserves recoverable with present technology and prices. U.S.S.R. figures are "explored reserves" that include proved, probable, and some possible. Canadian gas figure, under criteria adopted by Canadian Petroleum Association in 1980, includes proved and some probable. (c)Condensate. *Does not include shut in, injection, or service wells. †Estimates based on capacity as of Jan. 1, 1986, plus known 1986 closures and expansions. §Includes Albania, Bulgaria, Cuba, Czechoslovakia, East Germany, Hungary, Mongolia, North Korea, Poland, Romania, Viet Nam, and Yugolsavia.

COUNTRY	ESTIMATED PROVED RESERVES 1-1-1987		OIL PRODUCTION			REFINING Capacity (b/cd) January 1, 1987				
	Oil (1,000 bbl)	Gas (10^9 cu ft)	Producing wells* July 1, 86	Estimated 1986 (1,000 b/d)	% change from 1985	No. of ref.	Crude	Thermal operations	Catalytic cracking	Catalytic reforming
AFRICA										
Algeria	8,800,000	106,000	NA	600.7	−7.4	4	464,700	...	...	55,600
Angola-Cabinda	1,149,400	1,800	363	280.7	+24.8	1	32,100	...	...	1,900
Benin	100,000	...	6	7.0	+1.4	...	...	...	...	...
Cameroon	540,000	3,800	173	180.0	+34.3	1	43,000	...	...	6,500
Congo	720,000	2,500	286	115.0	+16.2	1	21,000	...	...	2,000
Egypt	3,600,000	8,900	666	773.7	−11.6	7	452,110	16,470	...	30,940
Ethiopia	...	...	...	...	...	1	18,000	...	...	2,200
Gabon	645,000	500	294	146.2	−4.4	1	15,600	7,200	...	1,400
Ghana	2,350	...	3	0.3	−40.0	1	28,000	...	...	5,550
Ivory Coast	125,000	3,400	20	20.0	−28.6	2	73,000	...	...	13,500
Kenya	...	...	...	...	...	1	95,000	...	...	9,000
Liberia	...	...	...	...	...	1	15,000	...	...	2,000
Libya	21,300,000	21,180	661	1,030.7	−2.0	3	329,400	...	...	14,582
Madagascar	...	...	...	...	...	1	16,350	...	...	2,600
Morocco	300	130	NA	0.3	...	2	81,303	...	5,600	13,735
Mozambique	...	...	...	...	...	1	17,000	...	...	2,500
Nigeria	16,000,000	47,000	1,111	1,464.0	−1.1	3	250,400	...	44,100	38,100
Senegal	...	...	...	...	...	1	29,800	...	...	2,870
Sierra Leone	...	...	...	...	...	1	10,000	...	...	...
Somalia	...	...	...	...	...	1	10,000	...	...	...
South Africa	...	...	...	...	...	5	388,500	59,500	81,400	57,800
Sudan	300,000	...	...	...	...	1	23,800	...	...	1,700
Tanzania	...	3,000	...	...	...	1	13,500	...	...	3,000
Togo	...	...	...	...	...	1	20,000	...	...	4,400
Tunisia	1,800,000	3,200	147	106.0	+1.9	1	34,000	...	...	3,300
Zaire	112,000	30	108	32.1	−8.3	1	17,000	...	...	3,000
Zambia	...	...	...	...	...	1	25,000	...	...	5,600
Total Africa	**55,194,050**	**201,440**	**3,838**	**4,756.7**	**−1.8**	**45**	**2,523,563**	**83,170**	**131,100**	**283,777**
WESTERN HEMISPHERE										
Argentina	2,270,000	23,000	8,774	430.2	−3.8	11	669,800	120,800	110,750	38,300
Barbados	500	...	95	1.8	−5.3	1	3,000	...	...	...
Bolivia	149,000	4,840	346	18.7	−11.0	3	46,930	...	...	14,158
Brazil	2,250,000	3,200	3,514	578.0	+5.7	13	1,321,100	41,100	321,900	21,600
Canada	6,850,000	99,600	50,037	1,475.3	+0.9	27	1,759,700	76,100	370,300	345,100
Chile	290,000	4,200	353	34.4	+4.2	3	150,450	8,400	34,000	5,300
Colombia	1,290,500	4,000	2,747	324.2	+83.2	4	226,000	61,000	91,000	6,000
Costa Rica	...	...	...	...	...	1	15,600	6,500	...	1,200
Dominican Republic	...	...	...	...	...	2	44,000	...	...	8,300
Ecuador	1,672,300	4,050	934	270.1	−2.5	3	87,600	12,600	12,600	2,780
El Salvador	...	...	...	...	...	1	17,000	...	...	3,000
Guatemala	23,000	30	8	4.9	+11.4	1	16,000	...	...	3,000
Honduras	...	...	...	...	...	1	14,000	...	...	1,800
Jamaica	...	...	...	...	...	1	35,500	...	...	3,540
Martinique	...	...	...	...	...	1	12,800	...	...	3,000
Mexico	54,653,000	76,500	3,737	2,468.0	−9.7	9	1,349,000	82,000	267,000	137,800
Netherlands Antilles	...	...	...	...	...	1	320,000	67,000	42,000	15,000
Nicaragua	...	...	...	...	...	1	14,500	...	...	2,800
Panama	...	...	...	...	...	1	100,000	...	...	7,500
Paraguay	...	...	...	...	...	1	7,500	...	...	...
Peru	546,000	850	3,577	179.0	−5.8	6	175,560	...	21,670	1,680
Puerto Rico	...	...	...	...	...	2	121,000	...	12,000	5,800
Suriname	1,000	...	47	1.8	+50.0		...	...	...	...
Trinidad & Tobago	610,000	10,400	3,211	167.9	−5.1	2	300,000	18,000	25,000	31,000
Uruguay	...	...	...	...	...	1	45,000	...	5,000	3,000
Venezuela	25,000,000	59,000	10,103	1,664.9	+6.9	7	1,224,700	122,000	179,400	6,000
Virgin Islands	...	...	...	...	...	1	600,000	40,000	...	125,000
United States	24,560,000	185,400	639,735	8,790.0	−2.0	†189	†15,258,214	†1,847,750	†5,234,100	†3,673,000
Total Western Hemisphere	**120,165,300**	**475,070**	**727,218**	**16,409.2**	**−1.2**	**294**	**23,934,954**	**2,503,250**	**6,726,720**	**4,465,658**
Total non-Communist	**618,199,600**	**2,030,180**	**752,948**	**40,562.8**	**+4.9**	**601**	**54,650,644**	**4,914,722**	**9,381,588**	**8,240,740**
COMMUNIST AREAS										
China	18,400,000	30,000	NA	2,590.0	+3.8	40	2,200,000	NA	NA	NA
U.S.S.R.	59,000,000	1,550,000	130,000	12,300.0	+3.4	39	12,260,000	NA	NA	NA
Other§	1,850,000	15,800	NA	427.0	−5.7	45	3,150,000	NA	NA	NA
Total Communist	**79,250,000**	**1,595,800**	**130,000**	**15,317.0**	**+3.2**	**124**	**17,610,000**	**NA**	**NA**	**NA**
TOTAL WORLD	**697,449,600**	**3,625,980**	**882,948**	**55,879.8**	**+4.4**	**725**	**72,260,644**	**4,914,722**	**9,381,588**	**8,240,740**

Worldwide Production

• Offshore (e) Estimated (c) Condensate (NA) Not available

WORLDWIDE PRODUCTION		Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo 1986	Cumulative bbl to July 1, 1986	°API gravity
				Flow	Artificial lift	Shut-in			
ABU DHABI	DEPARTMENT OF PETROLEUM	• Arzanah, 1973	11,000-11,300	409	59	346	997,031	7,872,358,000	42.0
		• Abu Al Bukhoosh, 1969	8,900-10,900						32.0
		• Mubarras, 1969	8,300-10,000						37.0
		• El Bunduq, 1964	9,400-10,900						40.0
		Asab, 1965	8,000- 8,700						41.0
		Bab, 1958	8,600- 9,300						44.0
		Bu-Hasa, 1962	8,300- 9,200						39.0
		Sahil, 1967	9,500- 9,800						41.0
		• Umm Shaif, 1958	9,800-12,000						37.0
		• Zakum, 1963	9,600-12,000						39.0
		• Umm al-Dalkh, 1969	7,700-8,500						
		Total Abu Dhabi		**409**	**59**	**346**	**997,031**	**7,872,358,000**	
ALGERIA(e)	SONATRACH	Zarzaitine, 1957	4,700	NA	NA	NA	584,000	7,179,087,000	42.2
		Edjeleh, 1956	1,500- 2,800						37.2
		Tiguentourine, 1966	2,160- 4,265						44.4
		El Adeb Lareche, 1958	4,100						43.3
		Assakaifaf N. & S., 1958	2,800						42.7
		Tan Emellel N. & S., 1960	2,800- 4,500						42.5
		Edeyen, 1964	5,580						41.5
		Hassi Mazoula S., 1963	4,430						40.2
		Hassi Mazoula B., 1965	4,920						42.0
		Acheb W. & Kreb, 1963 & 1960	7,360						45.6
		Tin Fouye N. +F6, 1962	4,265						39.6
		El Borma, 1967	8,200						42.9
		Keskassa, 1968	8,860						42.9
		Mereksen, 1974	9,420						45.8
		Gara, 1962	9,420						42.9
		Hassi Messaoud N., 1956	10,500						45.9
		Hassi Messaoud S., 1956	10,500						46.1
		Gassi-Touil & Gassi-Touil E., 1961	6,890						50.6-50.8
		Hassi Chergui	8,200						50.6
		Nezla N., 1965	8,530						51.5
		Rhourde El Baguel, 1962	9,850						40.2
		Mesdar E. & W., 1972	11,155						40.3
		El Gassi-El Agreb, 1959	10,170						47.9
		Rhourde Nouss & E., 1972	8,530						39.7
		Tin Foye Tabankort, 1966	4,600- 6,560						41.1-41.3
		Djoua W., 1967	5,580- 6,240						41.1
		Amassak, 1970	6,565						41.1
		Tamendjelt, 1970	5,585- 6,890						41.1
		Timedratine, 1964	8,155						40.7
		Ohanet N. & S., 1960	7,878						43.8
		Askarene, 1962	8,200						41.7
		Guelta, 1962	8,960						41.7
		Stah, 1971	9,515						45.8
		Ras Toumb, 1976	9,190						35.7
		Haoud Berkaoui-Ben Kahla, 1965	11,000						43.6
		Guellala-Guellala N.E., 1969	11,320						42.2-42.3
		N'Goussa, 1974	11,715						42.2
		Kef El Argoub, 1973	12,570						42.2
		Oued Noumer, 1969	8,860						48.3
		Djorf, 1974	9,025						48.3
		Djebel Onk, 1960	3,940						37.0
		Airar FJT	...						...
		Hassi R'Mel(c)	...						...
		Gassi-Touil(c)	...						...
		Other Crude	...						...
		Condensate	...						...
		Total Algeria		**NA**	**NA**	**NA**	**584,000**	**7,179,087,000**	
ANGOLA	FINA ANGOLA	Benfica, 1355	8,300	...	1	14	20	2,266,047	30.0
		Luanda, 1957	5,650	...	...	12	...	890,882	...
		Cacuaco, 1958	7,870	...	2	10	14	240,683	30.0
		Galinda, 1959	7,220	...	...	8	...	2,245,301	30.0
		Tobias, 1961	1,970	1	...	11	60	28,792,169	31.0
		Mulenvos, 1966	5,900- 6,600	1	6	9	240	4,925,955	25.0
		Quenguela, 1968	6,000	...	26	32	2,500	36,005,576	31.0
		Legua, 1972	6,300	...	1	...	100	611,921	31.0
		Bento, 1972	7,350	1	...	4	300	4,755,644	26.0

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells Flow	Artificial lift	Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
	C. Cobra, 1969	4,000	7	...	4	400	2,450,788	41.0
	Quinguila, 1972	3,400	3	12	2	7,500	28,584,426	36.0
	N'Zombo, 1973	5,000- 6,300	9	15	5	13,000	81,097,134	33.0
	Quinfuquena, 1975	6,800- 7,100	1	12	2	5,100	21,657,936	32.0
	Ganda, 1975	5,000	3	...	...	2,500	4,282,701	36.0
	Seriea, 1974	6,200	2	...	...	200	813,354	27.0
	Lumueno, 1977	4,600	8	...	1	2,300	2,240,200	37.0
	Pambo, 1982	4,600	4	...	...	850	1,276,323	39.0
	Luango, 1977	3,800	1	2	...	800	1,561,630	38.0
CHEVRON	• Malongo North, 1966	1,170- 8,150	4	57	9	14,500	202,951,639	30.0
	• Malongo West, 1967	1,680- 8,800	4	19	16	16,900	220,606,894	26.0
	• Malongo South, 1966	1,150- 1,440	2	26	5	8,200	67,494,846	25.0
	• Kali, 1969	11,400-11,660	1	...	...	390	4,041,287	31.0
	• Kungulo, 1975	3,860- 4,300	7	10	...	13,150	37,165,228	30.0
	• Limba, 1969	2,660- 7,350	2	9	3	12,400	79,246,794	31.0
	• Kambala, 1971	10,730-11,050	2	3	...	7,800	13,865,954	33.0
	• Livuite, 1979	7,270- 8,200	4	1	2	880	2,209,140	41.0
	• Takula, 1982	3,120- 9,030	55	11	5	107,350	91,316,872	30.0
	• Lifuma, 1984	7,850- 8,030	1	...	...	820	148,330	32.0
	• Vuko, 1983	3,020- 3,950	6	...	...	10,500	1,982,260	...
TEXACO	• Cuntala, 1978	7,000- 7,500	...	1	...	340	2,152,306	31.0
	• Essungo, 1975	6,500- 6,700	5	5	...	6,400	16,575,893	35.0
ELF ANGOLA	• Palanca, 1981	8,860	8	...	...	37,700	15,897,908	40.0
	• Pacassa, 1982	11,500	2	...	...	12,600	739,487	38.0
	Total Angola		**144**	**219**	**154**	**285,814**	**981,043,511**	
ARGENTINA **YPF**	Chubut, 1907	1,908- 9,168	27	2,231	43	87,969	951,963,215	21.1-26.0
	Jujuy, 1969	2,461-16,732	10	...	...	1,541	60,366,263	46.5-47.0
	La Pampa, 1968	3,609- 4,921	2	187	2	8,296	70,376,376	31.0
	Mendoza, 1932	2,178-16,778	34	1,120	10	99,039	1,021,474,774	23.7-32.0
	Neuquen, 1918	1,312-12,498	185	830	37	63,508	449,456,123	24.0-41.0
	Rio Negro, 1960	2,953- 7,546	59	798	18	42,003	417,851,243	22.5-41.0
	Salta, 1928	6,551-15,092	33	12	13	13,699	114,010,744	39.0-59.0
	Santa Cruz, 1946	1,468-17,060	128	2,919	64	98,410	933,137,877	21.1-30.0
	Tierra del Fuego, 1959	5,249- 7,824	95	101	11	20,530	143,180,329	43.4-46.0
	Formosa, 1984	11,466-11,490	3	...	2	4,019	2,914,799	42.0-42.9
	Total Argentina		**578**	**8,198**	**200**	**439,014**	**4,164,730,743**	
AUSTRALIA **BARRACK ENERGY**	Mount Horner, 1965	3,800- 5,800	...	1	3	2	7,280	38.0
BHP PETROLEUM PTY. LTD	• Jabiru, 1983	4,786	1	...	...	...	...	42.3
	Riversiea, 1981	4,504	...	2	1	160	228,560	25.2
	Yapunyah, 1982	4,311	...	1	...	4	16,860	39.2
BOND CORP., PETROLEUM DIVISION	Harriet, 1983	6,230	5	...	...	7,823	1,275,144	38.2
BRIDGE OIL LTD.	Thomby Creek, 1979	5,180	...	...	4	...	52,833	50.0
	Yellow Bank Creek, 1982	5,064	1	2	1	156	298,722	52.0
	Louise, 1986	5,900	1	1	...	2	543	59.0
CSR OIL & GAS DIV. BRISBANE	Anabranch, 1965	4,188	1	...	...	13	11,442	44.0
	Duarran, 1964	4,105	1	...	...	40	14,036	37.0
	Maffra, 1965	4,251	2	...	...	15	20,832	48.0
	Richmond, 1963	3,643	1	...	...	7	14,877	43.0
	Snake Creek, 1964	4,990	1	...	...	25	10,219	67.0
	Sunny Bank, 1962	6,139	1	...	...	3	706	40.0
	Trinidad, 1965	4,599	2	...	...	30	62,341	46.0
DELHI PETROLEUM	Jackson, 1981	4,750	5	27	...	14,500	11,281,000	40.0-48.0
	Jackson South, 1982	4,800	...	6	...	1,700	1,255,000	40.8
	Chookoo	6,000	2	...	...	300	75,000	45.0
	Wilson	5,000	...	6	...	400	261,000	40.0
	Naccowlah South, 1983	6,000	...	6	...	2,500	1,470,000	40.0-46.0
	Gunna	6,000	...	1	...	60	48,000	40.0
	Tinpilla	6,000	...	1	...	45	47,000	40.0
	Naccowlah West, 1983	5,700	...	7	...	1,500	865,000	40.0
	Bogala	6,900	...	1	...	220	159,000	40.0
	Yanda	8,000	...	1	...	70	20,000	40.0
	Mooliampah	6,000	1	...	...	110	34,000	40.0
	Watson South	5,500	1	...	...	600	176,000	40.0
	Sigma	5,700	...	1	...	150	24,000	40.0
	Tickalara	5,600	1	...	...	150	52,000	40.0
	Big Lake	6,600	2	2	...	360	161,000	45.0-48.0
	Gidgealpa, 1984	6,150	7	4	...	2,300	1,009,000	45.0-50.0
	McKinlay	5,100	...	1	...	50	13,000	41.0
	Strzelecki, 1978	5,800	11	8	...	7,000	2,037,000	43.0-49.0
	Dullingari, 1979	5,200	2	14	...	4,200	4,548,000	54.0
	Narcoonowie	6,000	2	...	...	110	60,000	52.0-53.0
	Limestone Creek/Biala, 1984	5,100	1	3	...	1,100	393,000	41.0
	Wancoocha, 1984	6,000	5	...	...	1,200	581,000	44.0-54.0
	Muteroo	6,000	2	1	...	2,500	665,000	45.0
	Spencer	6,500	2	...	...	700	95,000	47.0
	Jena	5,200	...	1	...	80	21,000	41.0

WORLDWIDE PRODUCTION

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
			Flow	Artificial lift	Shut-in			
	Alwyn	5,200	...	1	...	140	24,000	41.0
	Dirkala	7,000	1	...	...	700	79,000	54.0
	Nungaroo	4,150	...	1	...	90	3,000	42.0
	Ulandi	5,200	...	1	...	90	32,000	40.0
ESSO-BHP	● Barracouta, 1965	4,550	...	2	...	3,806	31,161,900	62.8
	● Marlin, 1966	5,100	...	1	3	9,359	48,863,300	50.0
	● Kingfish, 1967	7,500	4	22	11	43,276	912,236,000	46.9
	● Halibut, 1967	7,700	10	...	7	74,219	652,553,000	43.3
	● Mackerel, 1969	7,700	6	12	...	96,986	299,659,000	45.6
	● Tuna, 1968	6,500	20	...	2	5,118	29,010,600	40.5
	● Snapper, 1968	4,350	2	14	5	5,407	8,942,700	47.0
	● Cobia, 1972	7,700	10	...	2	22,528	39,136,900	44.6
	● West Kingfish, 1968	7,500	15	...	3	22,338	36,150,200	46.9
	● Fortescue, 1978	7,700	23	...	2	94,711	91,646,800	43.0
	● Flounder, 1968	8,200	8	...	2	6,318	5,222,540	46.7
HARTOGEN GROUP	Kooroopa, 1985	3,300	...	1	...	30	8,738	42.0
	Talgeberry, 1985	3,900	...	3	...	166	57,013	46.0
	Washpool, 1985	5,250	...	...	1	...	...	...
	Toobunyah, 1985	3,500	1	3	...	254	49,233	43.0
	Takyah, 1985	3,800	...	2	...	18	3,264	43.0
	Ipundu, 1986	2,700	...	1	...	43	7,800	43.0
	Borah Creek, 1982	4,900	...	...	2	...	8,265	34.0
	Kincora, 1980	4,700	1	3	...	64	276,299	34.0
	Sandy Creek, 1982	4,900	1	...	...	5	6,496	34.0
	Waratah, 1982	5,350	...	4	...	149	216,801	34.0
	Tintaburra, 1984	3,500	1	5	...	423	198,399	43.0
HOME ENERGY	Elina, 1981	4,300	...	6	...	814	757,000	37.0
	Sundown, 1983	3,600	...	2	2	153	115,000	39.0
	West Terrace, 1985	3,800	...	1	...	98	54,000	33.0
LASMO	Bodalla South, 1984	4,800- 5,230	6	...	...	2,946	1,397,609	47.2-48.7
	Kenmore, 1985	4,600- 4,980	6	...	...	2,441	553,690	48.2-45.8
	Black Stump, 1986	5,360	1	...	...	255	37,500	45.2
	Glenvale, 1985	3,800	...	...	1	16	3,369	49.3
MOONIE OIL N.L.	Moonie, 1961	5,800	...	21	8	674	21,321,862	44.5
	Alton, 1964	6,000	...	5	2	29	1,875,333	49.5
	Bennett, 1965	5,960	...	1	...	5	113,021	45.0
	Cabawin, 1961	10,800	1	...	...	11	56,050	49.0
	Mereenie, 1964	4,000	22	...	...	3,682	1,688,301	48.9
PANCONTINENTAL PETROLEUM LTD.	Nockatunga, 1983	5,420	...	4	1	13	109,861	49.6
	Winna, 1985	4,526	...	1	...	141	32,943	46.3
	Koora, 1985	4,822	...	1	1	1	928	41.7
	Thungo, 1986	4,670	...	1	...	96	3,537	45.7
SANTOS LTD.	Tirrawarra, 1970	9,500	29	...	...	3,867	5,146,862	52.0
	Moorari, 1971	7,705- 9,400	5	1	...	534	838,644	46.9
	Fly Lake, 1971	9,300	3	...	...	268	406,030	53.0
	Brolga, 1983	9,547	1	...	...	77	17,788	53.0
	Woolkinna, 1982	9,700	1	...	...	104	74,093	51.5
	Merrimelia, 1964	5,250- 7,070	9	2	...	1,704	1,812,400	35.5
	Meranji, 1985	5,660	...	2	...	446	121,800	41.0
	Bookabourdie, 1984	7,000	...	1	...	48	11,700	46.0
STRATA OIL	Woodada,[c] 1980	7,400	2	...	4	7	24,651	54.0
WAPET GROUP	Barrow Island, 1964	1,200- 6,700	7	387	110	20,273	214,720,463	37.0
	Dongara, 1969	5,250- 5,577	3	2	3	154	859,634	35.5
WOODSIDE	North Rankin,[c] 1972	9,800	7	...	...	7,192	3,546,774	52.3
	Total Australia		**267**	**612**	**181**	**482,472**	**2,438,618,486**	
AUSTRIA **MOBIL**	Voitsdorf, 1963	7,000	3	19	15	565	21,311,716	36.0
	Sattledt, 1971	5,700	...	13	1	661	4,754,776	37.0
	Kemating, 1979	6,100	...	8	1	976	3,160,083	34.0
	Gaiselberg, 1938	5,200	1	36	31	709	31,683,344	26.0
	Other	...	4	71	36	2,254	25,109,347	34.0
OEMV[e]	Hochleiten, 1977	3,100- 5,000	7	35	...	15,938	562,754,305	21.3
	Matzen, 1949	6,100	81	864	...			25.7
	Pirawarth, 1957	1,600- 6,500	...	73	...			28.4
	St. Ulrich, 1938	1,600- 4,300	1	185	...			31.1
	Other	...	6	202	...			...
	Total Austria		**103**	**1,506**	**84**	**21,103**	**648,773,571**	
BAHRAIN **BANOCO**	Awali, 1932	1,850- 4,600	156	124	34	42,300	765,000,000	33.0
	Total Bahrain		**156**	**124**	**34**	**42,300**	**765,000,000**	
BARBADOS **BARB. NOC**	Woodbourne, 1966	1,665- 6,701	25	70	47	1,845	3,868,707	29.0
	Total Barbados		**25**	**70**	**47**	**1,845**	**3,868,707**	
BENIN **PAN OCEAN**	Seme, 1968	6,232	...	6	...	7,500	8,137,500	22.6
	Total Benin		...	**6**	...	**7,500**	**8,137,500**	

WORLDWIDE PRODUCTION		Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
				Flow	Artificial lift	Shut-in			
BOLIVIA	YPFB[e]	Camiri, 1927	3,936	13	70	...	13,907	267,448,900	55.0
		Carand, 1960	3,940	27	14	...			60.0
		Colpa, 1961	9,184	17	...	...			65.0
		Monteagudo, 1966	4,592	14	25	...			41.0
		La Pena, 1965	8,856	24	...	...			43.0
		Palmar, 1964	10,758	7	...	...			65.0
		Rio Grande, 1961	9,512	40	...	...			62.0
		Vuelta Grande, 1978	8,220	4	...	...			67.0
		Espino, 1979	14,655	2	...	...			56.2
		Other	...	15	50	...			...
	OCCIDENTAL	Tita, 1976	6,450	10	...	5	190	4,224,838	67.9
		Porvenir,* 1978	9,600	7	...	2	3,850	8,677,052	60.5
	TESORO BOLIVIA PETROLEUM CO.	La Vertiente, 1977	15,230	7	...	...	1,334	3,452,052	64.1
		Escondido, 1980	11,293	...	...	3	...	...	60.0
		Taiguati, 1981	10,174	...	...	1	...	...	63.0
		Los Suris, 1981	13,577	...	...	1	...	...	50.0
		Total Bolivia		**187**	**159**	**12**	**19,281**	**283,802,842**	
BRAZIL	PETROBRÁS-ALAGOAS	Furado, 1969	4,440- 5,500	8	34		2,291	12,539,543	35
		Pilar	4,100-5,100	22	18		8,316	5,741,927	40
		Tabuleiro de Martins, 1957	3,900-4,950	—	18		851	3,552,359	27
		Other	...	3	7		308	1,577,521	...
	PETROBRÁS-AMAZONAS	Igarapé Cuia, 1985	NA	1			101	20,751	41
	PETROBRÁS-BAHIA	Agua Grande, 1951	820- 4,265	14	18		5,912	270,694,515	40
		Aracas, 1965	3,280- 8,856	7	103		8,154	105,331,215	41
		Buracica, 1959	1,476- 1,840	...	180		7,547	131,776,089	35
		Candeias, 1941	3,280-7,415	1	29		2,928	75,906,527	30
		Cassarongongo, 1959	1,475-4,755	3	19		1,232	13,815,444	32
		Cexis, 1983	1,670-5,230	4	5		2,081	1,875,319	30
		Dom João Terra, 1947	920-1,350	1	45		960	19,835,610	38
		Fax. Alvorada, 1983	2,100-4,900	...	26		3,759	1,574,651	31
		Faz. Boa Esperanca, 1966	7,215- 8,036	1	11		619	14,777,292	39
		Faz. Bálsamo, 1983	2,500-4,000	3	45		4,652	2,053,817	31
		Faz. Imbé, 1964	2,130-5,575	1	34		1,779	13,712,703	40
		Faz. Panelas, 1962	2,400-5,100	...	11		576	6,176,824	37
		Malombe, 1966	3,280	...	15		582	6,585,158	41
		Mata/Remanso, 1971	4,445- 4,560	9	42		2,247	18,204,040	35
		Miranga, 1965	3,280- 3,936	12	167		11,002	173,532,678	40
		Riacho da Barra, 1982	2,910-3,998	4	32		6,635	7,969,537	39
		Rio Dos Ovos, 1979	2,410-3,750	...	5		320	1,710,364	35
		Rio Pojuca, 1982	5,600-6,200	6	9		2,405	2,590,191	35
		Santana, 1962	2,400-4,000	...	4		191	5,402,311	37
		Sesmaria, 1963	3,100-4,600	3	19		1,285	2,314,034	35
		Taquipe, 1958	3,115-3,935	6	65		3,955	81,676,122	40
		Other	...	11	163		5,304	25,854,987	...
		• Candeias, Mar., 1941	750	1	8		612	6,603,946	30
		• D. João Mar., 1947	920	3	248		5,304	78,595,644	38
		• Ilheus, 1979	1,500	—	—		—	895,501	41
	PETROBRÁS-CEARÁ	Faz. Belém	1,150-2,500	2	184		2,596	2,651,141	13
		• Atum, 1983	5,800-6,750	8	...		4,612	4,653,908	25
		• Curima, 1978	6,888	9	...		6,215	13,608,446	32
		• Espada, 1983	5,750-6,900	2	4		2,141	2,363,977	26
		• Xaréu, 1977	5,717-5,766	12	3		6,657	11,189,790	39
	PETROBRÁS-ESPIRITO SANTO	Faz. Cedro, 1962	5,248	2	6		868	9,064,594	28
		Lagoa Parda, 1977	5,576	4	31		4,867	18,442,355	30
		Lagoa Piabanha, 1984	6,500	...	6		2,650	1,025,786	27
		Lagoa Suruaca, 1982	6,400	9	2		2,581	3,457,317	30
		Rio Itaunas, 1977	5,400	1	28		1,389	2,702,951	28
		São Mateu, 1969	5,750	...	45		1,096	3,248,766	27
		Other	...	1	79		3,293	4,678,320	...
		• Cação, 1978	9,184	3	1		1,813	7,908,952	32
	PETROBRÁS-RIO DE JANEIRO	• Enchova, 1976	6,973- 7,885	9	3		32,257	54,937,483	23
		• Bonito, 1977	6,950-8,000	10	...		12,864	22,479,900	27
		• Garoupa, 1974	11,382	...	13		23,119	47,834,110	30
		• Namorado, 1975	10,083	11	1		62,965	64,745,756	28
		• Parati, 1982	8,900- 9,200	2	1		2,793	3,728,932	25
		• Pampo, 1977	6,215	17	3		72,984	52,161,454	21
		• Linguado, 1981	9,000-11,000	8	1		32,464	36,105,424	20
		• Garoupinha, 1974	12,693	3	...		4,076	10,623,181	30
		• Badejo, 1981	8,500-10,500	1	5		10,626	11,394,750	28
		• Bicudo, 1982	8,000-11,000	4	...		1,386	24,887,788	22
		• Sul de Pampo, 1978	9,300- 9,600	2	...		3,552	5,913,858	20
		• Corvina, 1983	8,800- 9,000	5	...		15,223	15,320,868	25
		• Pirauna, 1982	8,900-10,500	5	1		15,179	13,790,951	27
		• Cherne, 1982	9,900-10,200	2	9		29,719	23,209,157	27
		• Bagre, 1983	8,700- 9,000	...	2		2,434	1,634,960	25
		• Trilha, 1983	8,800-11,000	2	...		8,957	7,268,913	28
		• Area RJS-150	NA	...	...		...	269,070	26
		• Anequim	8,200- 8,500	3	...		3,011	1,710,220	27
		• Viola, 1981	9,200- 9,900	1	3		8,457	3,901,750	26
		• Marimba, 1983	8,900- 9,200	...	1		1,123	994,072	28
	PETROBRAS-RIO GRANDE DO NORTE	Alto do Rodrigues	990- 1,120	4	183		4,294	3,445,398	18
		Estreito	650-820	4	218		7,092	4,852,408	16

*Cycling project

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells Flow	No. of wells Artificial lift	No. of wells Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
	Faz. Pocinho	1,450- 2,000	10	95		4,722	4,612,803	35
	Palmeira	1,450- 1,800	...	28		885	1,319,541	25
	Serraria	3,200- 3,900	2	27		1,634	1,416,684	27
	Guamaré	1,400- 1,600	...	19		971	1,097,202	25
	Lorena	1,200-170	4	6		411	113,182	28
	Rio Panon	650-850	...	36		438	267,325	16
	Upanema	1,100-1,800	10	11		2,100	451,748	28
	Other	...	1	1		1,090	753,477	...
	• Ubarana, 1973	7,216-8,365	35	19		17,867	37,202,104	40
	• Agulha, 1975	5,412	...	2		315	6,7563,604	
	• Área-1-RNS-36	NA	...	...		...	178,290	32
	• Macau-Mar	3,000	1	2		225	255,968	31
PETROBRÁS-PARÁ	• Área 1-PAS-11, 1983	NA	...	...		...	421,317	41.0
PETROBRÁS-MARANHÃO	São João, 1983	4,950- 6,200	...	3		...	52,094	40
SERGIPE	Atalaia Sul	1,450	...	3		250	2,602,456	24
	Brejo Grande, 1967	1,670	2	3		530	1,411,547	26
	Carmópolis, 1963	2,460	2	571		24,211	148,373,852	24
	Riachuelo, 1961	1,475	...	178		3,930	18,390,369	28
	Siririzinho, 1967	1,640	...	140		6,137	31,201,499	30
	Others	1,640	10	57		1,318	2,626,972	...
	• Caioba, 1969	6,232- 6,890	8	1		2,976	28,174,613	36
	• Camurim, 1970	6,232	16	9		3,676	12,665,872	25
	• Dourado, 1970	3,620- 3,635	2	...		848	3,488,201	36
	• Guaricema, 1968	3,335- 4,430	8	4		5,249	32,472,219	41
	• Robalo, 1973	3,300-4,500	2	1		194	728,061	30
	Total Brazil		**383**	**3,497**	...	**576,937**	**1,926,310**	**56.3**
BRUNEI SHELL	• Fairley, 1969	10,740	43		7	15,863	100,271,000	40.0
	• Ampa SW, 1963	7,068- 8,155	82		125	37,086	492,913,000	41.0
	• Magpie, 1975	NA	18		3	19,565	57,041,000	31.0
	• Champion, 1970	4,300	190		60	45,722	263,376,000	23.0
	Seria, 1928	NA	375		166	27,001	960,787,000	34.0
	Rasau, 1929	NA	2		2	2,391	1,433,000	30.0
	Other	...	...		5	...	12,998,000	...
	Total Brunei		**710**		**368**	**147,628**	**1,888,819,000**	
BURMA(e) MYANMA	Chauk-Lanywa, 1902	1,500- 4,000	170	275	...	30,000	477,230,000	36.0
	Mann, 1970	1,600- 7,000						37.5
	Myanaung, 1964	2,000- 4,000						40.5
	Prome, 1965	850- 5,000						36.0
	Yenangyaung, 1902	100- 6,700						36.0
	Total Burma		**170**	**275**	...	**30,000**	**477,230,000**	
CAMEROON ELF(e)	• Betika, 1972	5,300	138	28	4	172,430	276,627,000	42.5
	Ekoundou S., 1975	6,200						24.0
	Kole, 1974	5,500						31.0
	Kombo Center, 1976	5,900						37.0
	Kombo North, 1978	7,200						35.0
	Ekoundou Horst plus Center, 1972	7,200						29.0
	Boa, 1976	5,900						35.0
	Bavo South, 1976	5,600						29.3
	Betika S. Marine, 1979	6,300						30.0
	Ekuondou N. Marine, 1977	5,250						36.0
	Mokoko NE plus Abana, 1977	4,600						29.0
	Asoma Marine, 1973	3,600						19.0
	Kita E. Marine, 1978	6,900						40.8
	Mokoko S. Marine, 1977	3,300						17.0
	Inova Marine, 1976	6,200						32.8
TOTAL-CFP	• Moudi, 1979	5,250- 5,900	5	2	3	5,600	6,870,000	40.0
	• Moudi D., 1980	3,300	...	...	...	1,970	1,430,000	21.3
	Total Cameroon		**143**	**30**	**7**	**180,000**	**284,927,000**	

*Total output by Petrobras, grouped by states.

	Name of field, discovery date	Depth, feet	No. of wells capable of prod.	B/d average, first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
CANADA ALBERTA	Acheson, 1950	3,390	118	9,752	113,579,278	38.0
	Bantry, 1940	2,574- 3,300	181	6,033	42,941,527	...
	Bellshill Lake, 1955	2,950	406	14,576	51,398,578	...
	Bonnie Glen, 1952	3,959- 6,779	164	34,814	482,102,763	34.0-44.0
	Carson Creek N., 1958	8,787- 8,935	73	8,493	131,699,012	44.0
	Cessford, 1950	2,800- 3,028	249	3,022	27,833,541	...
	Clive, 1951	6,074- 6,208	166	5,669	46,089,384	...
	Countess, 1951	2,858- 4,272	150	7,484	57,558,782	...
	Fenn-Big Valley, 1950	3,900- 5,400	330	30,026	300,625,090	32.0
	Gilby, 1962	4,201- 7,000	152	3,631	44,699,780	...
	Golden Spike, 1949	3,570- 5,961	82	1,584	179,704,569	36.0
	Harmattan-Elkton, 1955	8,796-10,757	73	5,032	57,778,258	...
	Innisfail, 1956	6,730- 8,440	77	4,620	70,609,634	...
	Joarcam, 1949	3,179	277	5,420	97,357,599	...
	Joffre, 1953	4,983- 6,779	164	3,039	79,967,340	...

	Name of field, discovery date	Depth, feet	No. of wells capable of prod.	B/d average, first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
	Judy Creek, 1951	8,307- 8,701	273	19,712	377,804,260	43.0
	Kaybob, 1957	4,870- 9,577	87	5,941	96,699,188	...
	Kaybob S., 1958	5,600-10,042	101	11,814	70,787,899	...
	Leduc-Woodbend, 1947	3,062- 5,380	738	5,306	372,558,152	40.0
	Lloydminster, 1933	1,690- 1,945	837	6,179	43,735,536	...
	Medicine River, 1954	5,435- 7,600	331	9,724	61,670,014	...
	Mitsue, 1964	5,908	330	21,986	257,297,011	43.0
	Nipisi, 1965	5,648- 5,726	311	31,756	246,037,348	41.0
	Pembina, 1953	3,000- 6,133	3,925	91,055	1,153,739,123	32.0-37.0
	Provost, 1946	2,760- 2,898	1,159	11,260	56,214,675	...
	Rainbow, 1965	4,994- 6,160	297	44,116	471,882,726	38.0-42.0
	Rainbow S., 1965	6,102- 6,400	66	5,994	58,025,392	...
	Red Earth, 1956	4,184- 4,878	253	5,423	33,148,896	...
	Redwater, 1948	2,012- 3,200	848	16,603	775,570,801	35.0
	Simonette, 1958	10,500	37	1,971	36,037,877	...
	Snipe Lake, 1962	8,500	94	3,286	50,555,201	...
	Sturgeon Lake S., 1953	4,912- 8,471	143	14,763	128,606,828	37.0
	Sundre, 1954	8,700- 9,000	62	3,076	34,083,343	...
	Swan Hills, 1957	8,100	802	44,603	644,254,075	40.0
	Swan Hills S., 1959	8,400	200	21,228	328,232,257	...
	Turner Valley, 1913	3,100- 9,150	160	2,757	137,452,608	39.0
	Utikuma Lake, 1963	5,624	133	11,651	39,609,918	...
	Virginia Hills, 1957	9,210	177	10,799	133,217,639	34.0
	Wainwright, 1925	1,903- 2,200	748	9,801	60,390,126	...
	Westerose, 1952	6,818	31	12,270	117,561,009	...
	Willisden Green, 1956	5,157	774	10,084	108,707,098	...
	Wizard Lake, 1951	4,044- 5,973	45	20,256	309,849,758	...
	Zama	3,702	235	6,340	70,702,001	33.0-37.0
	Other	...	13,150	391,218	1,451,219,187	...
BRITISH COLUMBIA	Boundary Lake, 1957	3,418- 4,575	365	11,125	161,615,222	40.0
	Other	...	786	23,815	239,304,984	...
MANITOBA	All fields	...	1,590	14,091	153,735,586	...
SASKATCHEWAN	Steelman, 1950	4,600	690	8,314	246,897,370	...
	Weyburn, 1955	4,600	730	8,242	271,409,112	...
	Other	...	15,580	179,821	1,548,101,158	...
ONTARIO	All fields	...	1,100	2,517	59,826,273	...
NEW BRUNSWICK	All fields	...	50	31	816,859	...
NORTHWEST TERRITORIES	All fields	...	137	25,171	38,739,645	...
	Total Canada		**50,037**	**1,267,296**	**12,243,344,038**	

	WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
				Flow	Artificial lift	Shut-in			
CHILE	**ENAP-MAINLAND**	Canadon, 1962	6,090	11	1	51	242	14,336,508	38.4
		Daniel, 1960	5,806	9	2	112	141	34,351,311	25.4
		Daniel Este, 1961	5,523	6	1	60	463	28,072,431	25.0
		Dungeness, 1962	5,251	2	2	15	60	3,864,958	28.6
		Posesion, 1960	5,622	39	...	37	850	20,727,569	63.6
		Other	...	8	14	92	2,517	20,963,803	...
	TIERRA DEL FUEGO	Calafate, 1955	6,045	7	7	47	1,347	24,987,609	49.3
		Catalina Sur, 1961	5,779	...	2	41	6	6,351,185	44.0
		Cullen, 1954	5,730	12	6	87	499	40,779,505	41.8
		Tres Lago, 1957	5,724	21	...	63	452	15,614,170	40.1
		Catalina, 1956	5,756	3	14	9	4,130	4,944,080	38.7
		Other	...	17	19	205	1,569	56,933,374	...
	STRAIT OF MAGELLAN	Ostion, 1977	7,156	...	14	4	1,950	6,890,280	33.0
		Posesion, 1977	6,727	8	10	17	921	4,560,536	34.5
		Spiteful, 1977	6,298	6	46	30	7,049	37,935,465	34.5
		Spiteful Norte, 1978	7,150	1	10	47	1,316	8,723,057	39.0
		Daniel Este-Dungeness, 1977	6,126	22	2	3	2,868	1,816,516	35.9
		Pejerrey, 1984	7,229	3	28	12	9,014	3,941,484	39.0
		Total Chile		**175**	**178**	**932**	**35,394**	**335,793,841**	
CHINA, TAIWAN	**CHINESE PETROLEUM**	Tiechengshan, 1959	...	29	...	4	1,162	14,538,225	51.0
		Chingtsohu, 1967	...	9	...	9	122		50.0
		Yunghoshan, 1971	...	25	...	5	378	5,991,267	45.0
		Chuhuangkeng	...	21	...	1	188		50.0
		Total China, Taiwan		**84**	...	**19**	**1,850**	**20,529,492**	
COLOMBIA	**ECOPETROL**	Galán, 1945	3,200	...	52	19	1,144	20,914,000	19.0
		Infantas, 1918	3,200	...	260	48	2,548	222,817,000	25.8
		La Cira, 1925	3,250	...	612	84	8,451	458,347,000	24.0
		Lis-Nutria, 1957	9,500	23	95	8	6,831	31,313,000	31.0
		Llanito, 1960	7,300	...	54	7	5,531	9,395,000	21.0
		Cantagallo, 1941	6,800	...	9	2	703	17,923,000	19.7
		Casabe, 1941	3,800	...	262	93	7,205	218,953,000	20.7
		Yarigui, 1954	8,700	...	53	5	7,832	106,970,000	19.5
		Boquete, 1961	8,000	...	...	21	56	16,995,000	43.0
		Cicuco, 1956	...	...	...	...	284	43,233,000	...
		Petrolea, 1933	...	...	6	15	120	36,836,000	...
		Tibu, 1940	...	...	189	72	4,715	224,204,000	...

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
			Flow	Artificial lift	Shut-in			
	Ortega, 1951	...	...	6	...	394	11,254,000	...
	Apiay, 1981	10,500	6	...	...	5,526	6,935,000	23.0
	Orito, 1963	6,600	...	45	24	10,606	184,081,000	39.7
	Other	...	2	127	86	504	102,585,000	...
INTERCOL	Bonanza, 1963	4,000	...	15	...	929	12,246,000	30.0
	Provincia, 1962	8,000	...	65	...	15,916	147,881,000	33.0
	Arauca, 1980	18,000	...	4	...	819	3,657,000	41.0
	Other	...	...	...	...	...	667,000	...
HOCOL	Dina, 1961	3,600- 6,500	2	62	...	24,911	63,566,000	20.1-22.5
	Tello, 1971	7,000	...	...	...	9,742	34,509,000	22.0
	San. Fco., 1985	3,000	...	27	...	9,393	3,022,000	26.0
	Palogrande, 1971	6,000	...	37	...	...	10,312,361	20.0
	Other	...	5	48	...	200	10,998,000	...
ELF AQUITAINE	Trinidad, 1974	9,600	1	1	...	1,498	1,631,000	33.0
	Barquerena, 1982	10,300	1	1	...	1,677	1,207,000	37.0
	Caño Gar. Nrt., 1980	11,000	3	...	...	672	906,000	...
	Other	...	8	1	...	662	1,949,000	...
ARGOSY	Bourdine, 1974	11,000	...	3	...	921	2,667,000	24.1
	Máxime, 1976	11,000	...	1	...	...	111,000	26.3
	Nancy, 1974	11,000	...	1	...	314	1,710,000	25.5
SHELL	Sta. Rosa, 1984	...	...	...	...	27	52,492,000	...
OCCIDENTAL	Payoa, 1962	8,000	...	39	...	1,196	68,722,000	27.0
	Salina, 1936	2,500	...	71	...	2,468	10,786,000	28.0
	Caño Limón, 1984	7,600	...	2	...	20,698	2,183,000	29.0
	La Yuca, 1984	...	...	3	...	83,039	7,932,000	...
	Matanegra, 1984	...	...	3	...	27,124	2,213,000	...
	Other	...	...	...	...	...	5,277,000	...
TEXACO	Cocorná, 1963	2,100	...	55	...	3,245	11,690,000	12.0-13.0
	Palagua, 1956	5,000	...	126	..	4,615	78,207,000	14.0-17.0
	Tisquirama, 1963	8,000	...	8	...	823	4,531,000	16.0-28.0
	Velasquez, 1946	7,500	...	141	...	4,831	162,390,000	19.0-24.0
	Teca, 1981	2,100	...	138	...	15,544	11,997,000	12.0-13.0
	Other	...	...	13	...	250	4,422,000	...
CHEVRON	Rio Zulia, 1961	5,700	...	24	...	1,980	129,320,000	41.0
	Castilla, 1969	6,500	...	15	...	9,929	14,334,000	13.5
	Chichimene, 1974	...	...	...	...	499	79,000	...
PETROCOL	Andalucia, 1980	1,700	...	22	...	1,964	3,392,000	33.0
	Total Colombia		**51**	**2,696**	**484**	**308,336**	**2,589,761,361**	
CONGO **AGIP-ELF**	● Loango, 1972	3,000	4	45	3	28,175	67,859,056	26.8
ELF CONGO[e]	● Emeraude, 1969	820	...	113	...	86,825	273,255,436	21.8
	● Likouala, 1979	4,270	28	...	...			33.1
	● Yanga, 1979	2,950	47	...	...			29.4
	● Sendji, 1973	3,940	41	...	...			30.1
	Pointe Indienne, 1951	5,000	...	3	...			36.9
	Mengo, 1979	6,500	...	3	...			34.0
	Kundsi, 1980	4,000	...	2	...			35.8
	Total Congo		**120**	**166**	**3**	**115,000**	**341,114,492**	
DENMARK **DUC**	● Dan, 1971	6,000- 6,400	...	...	...	8,350	29,417,423	30.7
	● Gorm, 1971	6,500- 7,000	...	...	...	30,880	52,401,699	34.7
	● Skjold, 1977	5,000	...	...	...	15,820	14,996,373	29.6
	● Rolf, 1981	...	...	...	...	10,170	1,835,208	37.7
	● Tyra,[c] 1986	...	...	...	..	9,200	4,308,[illegible]24	56.6
	Total Denmark		**...**	**...**	**...**	**74,420**	**102,958,887**	
DUBAI **DUPETCO**[e]	● Fateh, 1966	7,900- 9,000	102	39	15	330,600	1,712,684,000	31.8
	● S.W. Fateh, 1970	7,500- 9,000						30.3
	● Falah, 1972	8,100						25.5
	● Rashid, 1973	9,400-11,500						38.0
ARCO	Margham, 1981	11,200	8	...	...	19,400	13,663,000	43.5
	Total Dubai		**110**	**39**	**15**	**350,000**	**1,726,347,900**	
ECUADOR **TEXACO**	Lago Agrio, 1967	10,175	22		...	9,900	[e]1,181,908,000	28.5
	Sacha, 1969	10,160	89		...	62,854		28.0
	Shushufindi, 1959	9,772	46		...	108,542		30.0
	Aguarico, 1968	9,850	5		...	6,600		27.2
	Auca, 1970	10,578	23		...	17,923		28.0
	Auca Sur-1, 1980	10,578	1		...	1,043		28.0
	Atacapi, 1968	9,855	4		...	2,177		31.0
	Parahuacu, 1968	10,173	2		...	965		30.0
	Yuca, 1970	10,423	6		...	3,943		28.0
	Yuca Sur-1, 1979	10,423	1		...	347		28.0

	WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells Flow	No. of wells Artificial lift	No. of wells Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
		Yulebra, 1980	10,345	2		...	2,030		21.4
		Culebra, 1973	10,626	1		...	855		17.5
		Cononaco, 1972	11,233	11		...	20,917		33.3
		Dureno	10,290	1		...	781		31.0
		Guanta	...	1		...	897		...
	CEPE-ORIENTE	Shushuqui, 1980	9,200	6		...	6,553		28.8
		Shuara, 1980	9,100	8		...	7,999		29.6
		Secoya, 1980	9,100	15		...	18,678		30.3
		Charapa, 1967	10,000	12		...	332		30.0
		Cuyabeno, 1972	8,050	4		...	6,239		28.8
		Sansahuari, 1979	8,100	1		...	2,379		28.8
		Tetete, 1980	9,300	5		...	4,708		28.0
		Bermejo, 1967	5,000	9		...	6,360		34.0
	ASSOCIACION CEPE-CITY	Mariann, 1971	7,700	5		...	1,067		20.0
		Fanny 18-B, 1972	7,700	8		...	3,686		22.5
		Tarapoa, 1973	8,300	1		...	296		20.0
	CEPE-PENINSULA	Ancon, 1921	4,000	475			851		35.6
		Carpet	...	70		...	144		...
		Cautivo	...	100		...	138		...
		Total Ecuador		**934**		...	**299,204**	**1,181,908,000**	
EGYPT	GUPCO/AMOCO	● El Morgan, 1965	5,100- 6,400	1	72	33	116,307	945,400,372	27.0-32.0
		● July, 1973	8,100-10,000	3	26	8	66,003	409,127,466	31.0-34.6
		● Ramadan, 1974	11,300	1	17	6	52,434	338,538,092	31.7
		● October, 1978	11,000	17	1	9	117,965	230,883,569	28.0
		● Shoab Ali, 1978	5,500	...	21	19	16,802	68,455,391	30.0
		● SG-300, 1976	5,876	...	1	1	6,227	16,124,782	24.8
		● Sidki (382), 1977	10,500	6	...	1	8,012	34,443,430	33.9
		● GS (365) 1980	10,140	...	...	1	...	514,872	32.0
		● GS (277), 1980	8,610	1	...	...	2,235	1,758,837	34.0
		● SB (305), 1981	8,100	...	1	...	631	1,696,208	30.0
		● Badri (315), 1981	6,400	1	11	19	12,817	23,708,857	27.0
		● Younis (347), 1981	4,300	...	2	3	2,606	8,397,924	32.0
		● GH (376), 1981	8,600	...	5	...	2,216	4,146,315	25.0
		● SB (339), 1981	4,600	...	1	...	271	290,712	29.5
		● Nessim (336), 1981	6,700	...	2	1	2,075	8,097,807	26.9
		● Hilal (404), 1982	9,200-10,000	6	...	...	27,491	21,002,335	32.0
		● Waly (356), 1982	6,900	1	...	2	337	2,464,290	35.0
		● GS (345/346), 1982	7,500	1	...	1	681	989,078	38.0
		● SB (367), 1984	7,000	1	...	...	2,800	872,211	38.0
		● GS (381), 1985	8,700	1	...	...	4,040	817,481	37.0
		Abu Gharadig, 1972	9,500	11	1	8	7,934	31,756,936	36.0
		WD-33, 1972	9,800-10,800	...	1	1	60	2,090,660	32.0
		Razzak, 1972; and E. Razzak	7,000	1	11	3	3,173	48,949,579	36.0
	PETROBEL/AGIP	Belayim, 1954	7,000- 8,500	1	33	21	43,744	403,839,300	22.5
		● Belayim, 1961	8,500	1	93	16	119,949	487,921,000	29.5
	WEPCO/PHILLIPS PETROLEUM	El Alamein, 1966	8,700	4	8	3	2,148	65,166,412	33.6
		Umbaraka, 1976	10,700	5	...	...	2,338	4,278,334	43.9
		Yidma, 1971	9,000	2	...	3	1,366	21,179,616	44.0
	GPC	Gharib, 1938	2,200- 4,500	...	81	134	4,315	245,677,430	24.3
		Bakr, 1958/W. Bakr, 1978	3,200- 1,500	1	47	35	3,264	74,893,676	18.0-19.0
		Umel Yusr, 1968	3,000- 3,300	2	17	18	2,436	32,617,728	21.5
		Amer, 1965	3,500	1	20	18	3,232	11,117,964	21.5
		El Ayoun, 1968	3,300	...	5	7	319	6,046,612	22.0
		Kareem, 1958	2,300	..	6	29	292	10,822,240	16.6
		Kheir, 1973	1,050	..	1	3	70	1,006,720	28.5
		Shukheir, 1966	2,500	5	...	6	1,415	2,881,736	34.0
		Ras El Behar	4,500	6	...	5	8,565	9,754,150	32.5
		Esh Elmalaha	3,700	2	...	...	226	62,900	44.0
		Sudr, 1946	2,600	1	11	8	1,252	48,819,628	21.6
		Asl, 1947	3,000	3	...	3	877	41,049,008	21.6
		Matarma, 1948	2,000	2	...	..	333	1,768,052	14.6
		El Khaligue, 1980	1,600	...	...	1	...	188,760	29.4
		Abu Senan T&Y	6,000	7	5	8	1,883	2,171,085	...
	SUCO/DEMINEX-BP-SHELL	● Ras Budran, 1978	11,400	...	16	...	34,182	36,431,963	25.0
		● LL 87-2, 1975	11,000	...	...	1	51	763,946	35.0
		● Ras Fanar, 1978	2,300	6	...	...	10,596	11,596,536	35.0
		● Zeit Bay, 1981	4,200	22	...	...	56,642	43,108,031	33.0
	OSOCO/TOTAL	● Shukheir Bay, 1978	6,300	1	...	...	558	1,502,730	34.5
		● S. Ramadan, 1982	10,000	2	...	...	256	145,148	36.5
	EPEDECO/JAPANESE	West Bakr, 1978	1,300- 1,500	...	20	5	4,224	9,137,892	18.0
	BADR PETROLEUM/SHELL	Badr el din, 1982	10,800	5	...	...	10,043	9,500,000	38.5
	AGIBA/DENISON MINES	Meleiha, 1972	6,000	...	...	12	...	440,266	40.0
	GEYSUM OIL/MOBIL-CONOCO	● Geysum, 1980	5,500	5	...	...	5,496	1,218,228	17.0
	SUESSO (ESSO)	● East Zeit, 1982	11,000	3	...	...	5,647	1,044,253	38.0
		Total Egypt		**139**	**536**	**452**	**778,836**	**3,786,858,548**	

	WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
				Flow	Artificial lift	Shut-in			
FRANCE	**ALSACE**	All fields	...	...	17	11	541	2,818,858	...
		Abandoned	...	...	...	...	...	24,309,334	...
	AQUITAINE BASIN	Lacq Superieur, 1949	2,170	10	34	13	934	25,045,994	22.3
		Parentis, 1954	7,710	2	66	5	6,896	192,967,809	33.4
		Lugos, 1956	5,250	...	24	1	857	9,521,267	20.8
		Cazaux, 1959	7,550	...	39	6	5,305	65,285,608	34.2-37.3
		Lavergne, 1962	11,480	...	4	...	414	11,930,627	41.7
		Pecorade, 1974	10,660	10	2	3	2,738	7,665,768	29.3
		Castéra-Lou, 1976	9,600	...	8	1	700	2,062,353	21.7
		Vic Bilh, 1979	7,100	8	14	17	5,225	11,520,531	26.6
		Lagrave, 1984	6,500	2	...	...	3,585	1,895,743	42.5
		Other	...	2	20	7	726	18,846,368	...
		Abandoned	...	...	...	...	...	70,857	...
	PARIS BASIN	Coulommes, 1958	6,230	...	35	13	489	12,991,372	32.6
		Châteaurenard, 1958	1,800	...	26	16	383	4,529,737	27.5
		Chailly, 1958	5,580	...	18	14	227	9,162,970	35.4
		St. Martin, 1959	4,590	1	10	4	350	8,172,805	33.0
		Villeperdue, 1959	6,100	...	65	24	9,430	4,337,420	34.4
		St. Firmin, 1960	1,800	...	38	20	610	1,510,585	27.5
		Chuelles, 1961	1,800	...	40	17	589	6,589,825	27.5
		Soudron, 1976	4,600	...	24	3	543	1,678,354	34.4
		Donnemarie, 1979	8,040	...	2	1	817	1,373,478	36.2
		Chaunoy, 1983	7,350	...	33	5	12,456	7,788,498	37.1
		St. Germain, 1984	7,200	2	5	3	2,087	690,881	36.0
		Other	...	6	82	58	3,029	22,662,264	...
		Abandoned	...	...	...	...	...	294,346	...
	SOUTHEAST + JURA	All fields abandoned	...	...	...	...	...	223,063	...
		Total France		**43**	**606**	**242**	**58,931**	**455,946,715**	
GABON	**ELF**[e]	● Anguille, 1962	9,200	202	12	116	117,135	843,266,000	31.2
		● Anguille NE, 1968	7,500						32.0
		● Anguille NNE, 1971	7,500						32.0
		● Barbier, 1972	6,000						29.5
		● Breme, 1976	5,000						36.5
		Clairette, 1956	4,400						29.0
		● Girelle, 1973	9,400						32.0
		● Gonelle, 1972	5,800						24.2
		● Grondin, 1971	7,500						16.4
		● Mandaros, 1972	4,900						19.8
		Olende, 1976	6,700						33.8
		● P.G.S. Marine, 1975	7,500						32.5
		● Port Gentil Ocean, 1964	6,500						33.0
		Tchengue, 1957	4,100						26.8
		● Torpille, 1968	8,200						35.8
		● Baliste, 1974	4,900						28.3
		● M'Bya Sud, 1969	6,700						35.4
		● Anguille SE, 1962	8,200						32.8
		● Ayol Marine, 1979	7,700						22.8
		● Baudroie N., 1980	7,500						34.5
		● Baudroie Marine, 1968	7,500						33.3
		Other	...						...
	SHELL/GABON/ELF	● Lucina-Marine, 1971	5,900	15		1	11,381	42,660,000	37.0
		Lucina-Marine W., 1982	...	...		...	1,421	957,000	37.0
	SHELL GABON	Gamba, 1963	3,000	31		9	6,781	149,127,000	32.4
		Ivinga, 1967	3,100	22		6	6,282	98,337,000	32.5
	AMOCO	Oguendjo B and C, 1981	5,000- 6,000	...	12	1	17,000	19,818,000	35.0
		Total Gabon		**294**		**133**	**160,000**	**1,154,165,000**	
GHANA(e)	**AGRI-PETCO**	● Saltpond, 1977	8,500	3	...	3	300	3,938,000	36.0-39.0
		Total Ghana		**3**	...	**3**	**300**	**3,938,000**	
GREECE	**N. AEGEAN PET. CORP.**	● Prinos, 1974	8,000- 8,800	16	...	...	27,200	41,525,300	30.6
		Total Greece		**16**	...	...	**27,200**	**41,525,300**	
GUATEMALA(e)		Rubelsanto, 1974	5,300- 7,000	...	4	...	4,900	12,644,000	26.0-30.0
		West Chinaja, 1977	3,200- 3,800	3	...	...			35.0-43.0
		Caribe, 1981	6,830- 7,280	NA	1	...			22.0-24.0
		Tortugas	2,300	...	...	2			35.0
		Tierra Blanca	11,230	...	...	1			19.5
		Total Guatemala		**3**	**5**	**3**	**4,900**	**12,644,000**	
INDIA	**GUJARAT STATE**	Ankleshwar, 1960	2,953- 3,937						
		Bakrol, 1968	4,593- 4,921						
		Kadi, N., 1968	2,953- 3,909						

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
			Flow	Artificial lift	Shut-in			
	Kadi, S., 1968	5,906- 6,562	267	2,201	712	614,000	1,761,710,000	...
	Kalol, 1961	4,265- 5,250						
	Kathana, 1965	5,250- 5,906						
	Kholka, 1966	4,265- 5,577						
	Kosamba, 1963	1,968- 2,625						
	Nawagam, 1963	4,429- 6,652						
	Sanand, 1963	4,265- 4,593						
	Sobhasen, 1968	4,429- 5,906						
	Wovel, 1963	4,265- 4,593						
ASSAM STATE	Digboi, 1890	300- 7,500	203	570	714	53,335	9,653,711	...
	Geleki, 1968	12,632-12,795						
	Lakwa, 1965	8,038-12,795						
	Moran, 1958	11,000						
	Nahorkatiya, 1953	9,500						
	Rudrasagar, 1961	10,171-10,500						
MAHARASHTRA STATE	Bombay High, 1974	4,530- 4,630						
	Total India		**470**	**2,771**	**1,426**	**667,385**	**1,771,363,711**	
INDONESIA PERTAMINA UEP I(e)	Besitang, 1977	3,973	71	133	22	104,325	2,876,253,930	51.5
	Gebang, 1977	2,917						54.0
	K. Simpang, 1971	3,740- 5,019						45.0
	P. Tabuhan, 1937	3,350- 5,893						50.8
	Rantau, 1929	2,764						45.3
	Serang Jaya, 1926	3,701						47.5
	Other	...						...
PERTAMINA UEP II(e)	Benuang, 1942	6,103	70	342	1,007			35.1
	Benakat East, 1973	NA						NA
	Tempino, 1931	1,647						23.0
	Gn. Kemala, 1938	5,448						38.0
	Limau, 1928	3,896- 4,626						NA
	Ogan Timur, 1943	3,793						27.42
	Talang Jimar, 1937	4,123						31.0
	T. Miring, 1935	640						NA
	Tanjung Tiga, 1938	3,750						28.0
	Kenali Asam, 1931	2,077						29.0
	Belimbing	5,371						...
	Kuang, 1940	5,249						25.1
	Other	...						...
PERTAMINA UEP III(e)	Cemara, 1976	3,964- 7,104	33	55	96			...
	Jatibarang, 1969	3,063						29.0
	Tugu Barat, 1979	3,014						...
	Other	...						...
PERTAMINA UEP IV(e)	Bunyu, 1923	2,077	32	129	173			33.2
	Sangatta, 1939	1,842						33.0
	Tanjung, 1938	2,296						39.9
	Tapian Timur, 1967	4,396						38.3
	Warukin S., 1966	2,067						26.9
	Other	...						...
PERTAMINA UEP V(e)	Klamono, 1936	574	...	47	8			19.0
	Linda, 1977	3,281						19.0
	Sele, 1951	2,156						35.0
PERTAMINA (from Stanvac)(e)	Sago, 1940	1,800	NA	NA	NA			34.0
	Lirik, 1939	1,600						34.0
	Molek, 1956	2,600						34.0
	N. Pulai, 1941	1,800						34.0
	S. Pulai, 1941	1,800						34.0
	Talang Akar, 1922	2,800						35.0
	Benakat, 1932	1,600						35.0
	Jirah, 1930	2,300						35.0
	Rajah, 1940	6,000						38.0
	Abab, 1951	6,000						36.0
PERTAMINA (N.E. Kalimantan)(e)	Sembakung, 1976	2,600	11	6	2			36.0
	Bangkudulis, 1980	3,250	...	...	1			39.5
PHILLIPS GROUP(e)	Salawati, 1976	5,749	...	7	6			39.2
AARNL(e)	Bula	280- 700	...	49	57			22.5
IIAPCO(e)	● Cinta, 1970	3,500	...	42	3			34.0
	● Gita, 1972	5,000	1	6	2			34.5
	● Kitty, 1973	2,700	...	7	...			18.0
	● Nora, 1973	3,200	...	5	...			29.0
	● Rama, 1974	3,200	...	47	21			31.0
	● Selatan, 1971	4,000	...	11	4			19.5
	● Zelda, 1971	7,500	1	32	10			33.0
	● Krisna, 1979	4,500	...	33	5			37.0
	● Yvonne, 1980	4,500	...	10	1			36.0
	● Farida, 1982	8,000	...	18	4			32.0
	● Titi, 1982	8,000	...	...	4			33.0
	● Sundari, 1982	4,400	...	13	2			25.0
	● Duma, 1983	2,300	...	3	3			16.0
	● Karmila, 1983	4,800	...	5	1			36.0

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells — Flow	No. of wells — Artificial lift	No. of wells — Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
PETROMER TREND(a)	Canderawasih, 1976	3,500	...	8	4			28.1
	Jaya, 1973	3,050	...	15	2			41.4
	Kasim, 1972	3,350	...	35	2			36.6
	Walio, 1975	2,750	...	181	32			33.8
	Other	...	...	8	6			...
LEMIGAS(a)	All fields, 1893-1909	2,155- 2,297	5	66	348			...
CALTEX	Aman, 1974	4,700	...	10	...	2,571		42.1
	Anatara, 1978	1,425	...	5	...	1,051		35.7
	Balam SE, 1972	4,500	...	13	...	678		29.6
	Balam S., 1969	1,600	...	48	3	9,689		33.3
	Bangko, 1970	1,950	...	69	11	28,422		33.8
	Batang CPI, 1975	690	...	4	2	196		18.8
	Bekasap, 1955	2,950	...	48	11	15,289		33.4
	Bekasap S., 1968	3,900	...	8	6	1,022		34.1
	Benar, 1973	2,450	...	25	3	5,795		32.9
	Cebakan, 1974	4,700	...	4	...	566		30.1
	Garuk, 1980	4,600	...	2	...	46		30.6
	Hitam, 1975	6,690	...	4	...	1,357		38.7
	Intan, 1977	3,350	...	6	1	1,119		32.8
	Jorang, 1972	5,500	...	13	3	9,738		58.2
	Kerang, 1977	3,900	...	11	3	1,671		37.3
	Kopar, 1974	5,300	...	12	7	2,221		37.1
	Kotabatak, 1952	5,500	...	65	50	21,893		28.9
	Libo, 1968	6,000	7	1	3	1,641	5,732,649,240	34.3
	Libo SE, 1973	5,900	18	4	4	11,091		42.0
	Lincak, 1981	2,570	...	4	...	755		35.2
	Menggala N., 1968	3,850	...	14	4	5,234		32.5
	Menggala S. CPI, 1968	3,765	...	7	1	2,185		33.5
	Minas, 1944	2,600	...	408	131	204,943		34.7
	Mindal, 1971	3,400	...	2	1	125		36.0
	Mutiara, 1976	3,500	...	2	...	136		34.1
	Nella, 1977	5,000	...	3	...	262		34.7
	Obor, 1978	7,370	...	1	...	222		39.9
	Pager, 1974	4,300	...	23	2	8,030		37.3
	Pelita, 1977	6,600	1	4	...	862		38.4
	Pematang, 1959	3,750	1	35	8	8,148		1.6
	Pematang Bow, 1969	5,300	...	4	7	1,079		34.8
	Pemburu, 1981	2,300	...	7	...	3,351		35.3
	Perkebunan, 1977	2,300	...	1	...	29		29.4
	Petani, 1964	4,750	2	29	3	12,382		32.8
	Petapahan, 1971	4,500	...	21	7	5,843		27.9
	Pinang, 1971	3,950	...	19	3	3,282		32.4
	Pinggir, 1972	3,300	...	5	...	323		34.7
	Pinggir S., 1973	3,300	...	2	...	76		38.5
	Pudu, 1972	5,950	...	6	7	1,391		36.1
	Puncak, 1979	2,400	...	11	2	4,674		35.3
	Pungut, 1951	3,400	...	27	7	4,816		37.7
	Rangau, 1968	6,100	...	3	6	174		42.0
	Rantaubais, 1972	1,070	...	9	6	348		21.0
	Rokiri, 1979	6,100	...	...	2	...		41.3
	Seruni, 1972	3,000	...	22	2	3,608		35.7
	Sikladi, 1975	4,340	...	18	2	2,450		38.2
	Singa, 1977	3,200	...	1	...	44		31.0
	Sintong, 1971	3,400	...	19	1	2,735		32.2
	Sintong SE, 1973	4,500	...	1	...	40		36.1
	Suram, 1971	1,750	...	3	...	240		27.6
	Topaz, 1977	5,200	...	7	1	2,290		33.0
	Topi, 1979	3,630	...	1	...	63		36.7
	Tandun, 1969	3,000	...	9	1	745		34.3
	Telinga, 1975	4,205	...	7	3	948		33.6
	Tunas, 1983	4,819	...	2	...	201		35.0
	Ubi, 1976	4,350	...	20	1	1,763		35.8
	Waduk, 1982	6,100	...	10	3	1,173		37.6
	Duri, 1941	770	...	1,010	226	66,962		21.4
	Kulin, 197[illegible]	2,050	2	53	8	5,117		20.0
CAL ASIATIC TOPCO	Batang, 1975	690	...	7	3	457		19.2
	Buaya, 1978	2,035	...	1	...	16		28.0
	Lindai, 1971	1,100	2	12	2	984		30.7
	Menggala S., 1968	3,765	...	1	...	1,133		33.5
	Tanjung Medan, 1976	2,770	...	2	5	760		37.6
	Benua, 1978	2,400	...	14	3	7,480		41.4
	Beruk, 1974	1,750	...	19	4	13,314		38.0
	Bungsu, 1976	2,050	...	7	1	2,749		38.4
	Damar, 1974	4,650	...	5	1	715		33.5
	Dusun, 1979	2,550	...	5	1	1,911	227,063,995	42.3
	Gatam, 1977	2,385	...	2	...	7		33.5
	Kasikan, 1972	660	...	18	6	975		27.3
	Beruk NE, 1976	1,800	...	3	2	212		40.0
	Osam, 1978	900	...	5	...	232		31.8
	Paitan, 1978	2,315	...	1	...	101		31.6
	Pedada, 1973	950	...	26	1	13,676		33.1
	Pusaka, 1977	2,250	...	17	4	4,364		34.6
	Sabak, 1974	2,350	...	13	...	2,516		35.8

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells Flow	No. of wells Artificial lift	No. of wells Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
	Terantam, 1973	900	...	4	...	178		31.7
	Zamrud, 1975	3,600	...	42	2	28,012		40.3
	Langgak, 1976	1,380	...	18	2	1,393		31.7
STANVAC (Central Sumatra)	Binio, 1972	1,600	...	21	8	600	11,413,426	34.0
	Pekan, 1976	3,700	...	21	23	1,064	7,111,284	35.0
	Merbau, 1979	2,700	2	22	11	1,927	5,555,225	36.0
	Kerumutan, 1980	3,000	...	21	12	1,334	4,067,881	35.0
	N. Merbau, 1980	2,600	...	8	4	820	2,557,484	36.0
	Panduk, 1981	2,500	...	6	4	309	1,193,716	46.0
	Kayuara, 1982	3,700	...	7	5	535	1,312,474	35.0
	Gemuruh, 1983	2,800	...	15	2	1,844	693,616	34.0
	E. Kayuara, 1983	3,500	...	34	2	4,166	1,292,990	35.0
	Mutiara, 1985	2,700	...	2		128	797,023	34.0
	Other	4,600	...	...	1	...	9,175	...
STANVAC (South Sumatra)	Ibul, 1970	5,700	...	17	24	1,423	21,183,208	36.0
	Rambutan, 1972	4,500	5	1	17	173	3,169,935	42.0
	Tabuan (PSC)	4,000	4	4	2	2,318	419,610	34.0
	Other	4,500	3	1	5	209	797,023	...
ARCO	Ardjuna, 1969	2,380- 7,250	99	156	45	146,824	575,996,900	37.0
	Arimbi, 1972	2,943	...	11	1	2,127	21,171,100	33.0
ROY M. HUFFINGTON INC.	Badak, 1972	5,190-10,600	26	11	11	6,056	34,883,347	32.0
	Nilam, 1974	7,500-11,500	30	10	3	7,556	15,081,366	32.0
	Pamaguan, 1974	900- 5,100	3	11	7	2,365	4,475,557	30.0
	Mutiara, 1984	900- 5,800	11	...	7	2,657	1,489,037	30.0
	Semberah, 1974	2,900-10,100	...	...	16	...	7,041	35.0
TOTAL CFP	• Tamboza, 1984	...	...	...	...	6,000	3,100,000	53.0
	• Handil, 1974	...	...	...	...	134,000	552,400,000	33.0
	• Bekapai, 1972	...	...	...	...	17,000	145,100,000	41.0
UNOCAL	• Attaka, 1970	7,500	32	39	10	47,994	407,101,187	39.0
	• Melahin, 1972	7,500	4	2	...	822	5,752,783	23.1
	• Kerindingan, 1972	7,000	2	3	3	431	4,980,000	23.8
	• Sepinggan, 1973	11,150	6	7	4	6,356	38,316,160	34.0
	• Yakin, 1976	5,100	2	21	5	12,471	12,981,741	18.8
	• Rajah, 1981	5,500	2	1	...	2,200	2,700,021	33.8
ASAMERA (NORTH SUMATRA)	Geudondong, 1965	3,192	...	...	23	24	5,199,661	53.1
	Julu Rayeu, 1968	2,832	2	8	26	396	12,152,892	53.6
	lee Tabeu, 1971	2,721	1	3	43	81	11,863,219	50.3
	Alur Cimon, 1972	3,098	...	...	24	13	1,378,939	50.8
	Tualang, 1973	2,631	3	11	39	3,521	28,141,145	49.9
	Peudawa, 1980	3,083	...	...	12	23	1,567,420	48.1
	Other	...	...	...	11	...	712,478	...
ASAMERA (SOUTH SUMATRA)	Kluang, 1913	2,591	5	27	42	954	33,278,269	42.6
	Mangunjaya, 1934	2,700	...	8	91	293	22,891,364	32.0
	Tanjung Laban, 1982	3,590	10	...	4	2,687	1,818,585	38.1
	Ramba, 1982	3,150	46	1	13	27,496	20,125,149	37.0
	Rawa, 1985	4,038	1	...	12	...	47,838	38.7
	Other	...	...	...	7	...	1,197	...
	Tempino, 1931	4,493	3	...	6	206	1,169,067	40.9
	Bentayan, 1932	4,446	...	5	3	906	189,522	22.0
	Panerokan, 1976	4,915	3	...	2	44	159,272	39.4
CONOCO GROUP	• Udang, 1974	5,595	2	19	6	10,301	50,160,186	40.0
MOBIL OIL	Arun, 1971	10,050	34	...	4	98,761	233,771,001	55.0
TESORO Indonesia Petorleum Company	Samboja, 1909	360- 4,380	1	25	99	584	64,109,030	21.0
	Sanga Sanga, 1897	275- 6,000	11	101	127	3,471	264,971,370	32.0
	Tarakan, 1906	200- 6,540	2	133	1,030	1,915	209,189,146	20.0
	Total Indonesia		**614**	**4,510**	**4,273**	**1,258,000**	**11,686,244,225**	
IRAN(e) **NIOC**	Agha Jari, 1936	7,440		58	31	2,013,000	34,699,843,000	34.0
	Ahwaz Asmari, 1958	8,150		73	12			32.0
	Ahwaz Bangestan, 1958	12,000		...	7			24.3
	Bibi Hakimeh, 1961	4,570		19	14			29.9
	Binak, 1959	10,440		...	4			29.9
	Chillingar, 1974	3,350		...	1			39.3
	Chesmeh Khush, 1967	10,700		...	4			27.7
	Dehluran, 1972	11,900		...	6			34.3
	Gachsaran, 1937	3,400		46	16			31.0
	Haft Kel, 1927	1,980		2	9			37.7
	Karanj, 1963	5,360		7	...			33.9
	Kharg, 1961	10,900		...	...			31.6
	Kupal, 1965	10,500		...	7			32.8
	Lab-e Safid, 1968	4,350		...	7			35.3
	Mansuri, 1963	7,100		4	4			28.4
	Marun, 1963	9,400		55	57			32.6
	Masjid-e Suleiman, 1908	1,600		7	17			39.3
	Naft Safid, 1938	5,000		5	14			36.8
	Paris, 1964	4,670		22	5			38.8
	Par-e Siah, 1964	4,250		...	1			37.7
	Pazanan, 1961	7,250		44	27			37.2

WORLDWIDE PRODUCTION		Name of field, discovery date	Depth, feet	No. of wells Flow	 Artificial lift	 Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
		Rag-e Safid, 1964	7,230		19	10			28.6
		Ramin, 1966	12,200		...	...			32.9
		Ramshir, 1962	8,750		...	3			27.6
		Sulabedar, 1971	3,400		...	1			30.4
		Naft-e Shah, 1923	2,000- 3,000		...	...			43.0
		● Bahregansar, 1960	9,000		...	...			30.0
		● Hendijan, 1968	11,000		...	...			23.0
		● Nowruz, 1966	8,200		...	...			21.0
		● Rakhsh, 1969	7,650		...	...			35.8
		● Rostam, 1966	7,000		...	...			34.4
		● Ardeshir, 1969	2,800		...	...			27.0
		● Cyrus, 1962	7,000		...	...			18.3
		● Darius, 1961	11,000		...	...			34.0
		● Fereidoon, 1966	7,000		...	...			28.5
		● Sassan, 1965	7,500- 8,100		...	...			34.0
		Total Iran			**361**	**257**	**2,013,000**	**34,699,843,000**	
IRAQ(e)		Ain Zalah, 1939	5,200- 6,500						31.0
		Bai Hassan, 1953	4,800- 5,400						34.0
		Butmah, 1953	3,900						30.0
		Hamrin, 1973	2,000						...
		Jambur, 1954	5,500-12,500						38.0
		Kirkuk, 1927	2,800- 4,200	NA	NA	NA	1,747,000	17,836,572,000	36.0
		Naft Khaneh, 1909	3,500						42.5
		Rumaila North, 1958	10,000						34.0
		Rumaila, 1953	10,800						35.0
		Zubair, 1949	11,000						34.2
		Abu Ghurab	...						27.7
		Buzurgan	...						27.7
		Jabal Fauqui	...						...
		Lahis	...						...
		Total Iraq		**NA**	**NA**	**NA**	**1,747,000**	**17,836,572,000**	
ISRAEL(e)	**LAPIDOTH**	Heletz-Brur, 1955	5,200	...	4	...			29.2
		Kochav, 1962	5,500	...	2	...			27.9
	OEIL	Ashdod, 1976	8,400	...	2	...	100	20,527,000	32.5
	EMOG	Gurim, 1984	3,280	...	1	...			17.0
		Total Israel		...	**9**	...	**100**	**20,527,000**	
ITALY	**AGIP**	Cavone, 1979	10,663-18,068	9	7	4	2,774	5,481,336	24.0
		Malossa, 1973	17,881-21,231	4	...	6	5,290	24,713,443	55.0
		Pisticci-S. Cataldo, 1960	6,820- 6,880	9	2	3	898	6,679,927	11.4
		Gela, 1956	11,280-11,350	47	16	9	6,715	93,138,366	10.0
		Perla	7,850	4	4	...	1,036	1,139,419	13.3
		Cela Mare	10,300	8	3	7	1,189	14,181,965	10.0
		Ragusa, 1954	5,760	30	30	10	4,322	123,804,962	...
		Nilde, 1977	4,545	1	...	1	9,874	12,920,741	38.9
		S. Maria	...	3	3	...	791	102,841	15.9
		Emilio S.	9,215	1	...	...	1,350	337,622	13.0
		Narciso	2,650	1	...	...	5,206	989,278	21.1
		Varus	...	18	...	38	1,970	20,588,048	...
		Other	...	16	...	49	610	19,868,762	2.8-55.9
	ELF(e)	● Santa Maria a Mare, 1974	7,900	11	...	...			23.0
		● Rospo Mare, 1975	4,600	...	3	...	6,585	21,295,000	11.0
		● Sarago Mare, 1979	5,200	6	...	...			8.0
		Total Italy		**152**	**68**	**78**	**48,000**	**325,372,948**	
IVORY COAST	**ESSO COTE D'IVOIRE**(e)	● Belier, 1975	6,500	4	10	...	4,990	14,300,000	...
	PHILLIPS-AGIP-SEDCO-PETROCI	● Espoir, 1980	6,500-11,000	6	...	2	14,476	21,215,181	32.3
		Total Ivory Coast		**10**	**10**	**2**	**19,466**	**35,515,181**	
JAPAN	**JAPEX**	● Aga-Oki, 1972	7,590	8	...	7	1,384	4,829,116	24.8
		Higashi-Niigata, 1965	4,500- 9,200	18	...	11	1,201	8,095,786	53.9
		Sarukawa, 1958	2,000- 3,200	12	24	41	623	10,290,483	32.3
		Yoshii, 1968	8,000	11	...	13	748	8,313,788	61.8
		Other	...	...	...	...	1,604	27,830,297	...
	IDEMITSU OIL DEVELOPMENT CO. LTD.	● Agaoki-Kita, 1982	4,950	8	...	...	4,167	1,695,054	33.0
	TEIKOKU OIL	Yabase, 1933	1,100- 5,800	...	57	14	342	32,852,002	33.0
		Minami-Aga, 1964	7,300- 9,600	9	4	13	511	13,369,039	38.5
		Minami-Nagaoka, 1984	13,200-15,100	3	...	9	710	418,971	55.7
		Hagashi-Kashiwazaki, 1970	6,000- 8,900	6	...	7	612	7,629,280	62.0
		Kubiki, 1959	1,100- 6,400	19	70	37	675	12,600,503	29.7
		Other	...	11	24	13	188	5,211,852	...
		Total Japan		**105**	**178**	**165**	**12,765**	**133,136,171**	

WORLDWIDE PRODUCTION		Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
				Flow	Artificial lift	Shut-in			
KUWAIT(e)	KOC	Burgan, 1938	4,800	210	...	183	1,286,000	22,019,300,000	30.8
		Ahmadi, 1952	4,800	11	...	73			31.7
		Magwa, 1951	4,800	71	...	42			33.0
		Raudhatain, 1955	8,600	41	...	12			34.4
		Bahra, 1956	8,500	...	...	2			...
		Sabriya, 1957	8,300	9	...	35			36.3
		Minagish, 1959	10,000	1	...	20			34.4
		Umm Gudair, 1962	9,000	20	...	13			26.9
		Total Kuwait		**363**	...	**380**	**1,286,000**	**22,019,300,000**	
LIBYA	AGIP	Bu Attifel, 1968	14,300	25	...	8	124,670	696,197,000	41.0
		Rimal-Katib, 1965	14,000	2	...	4	1,380	3,064,000	35.0
	ELF(s)	El Meheiriga	10,500	2	...	...	1,200	466,000	46.0
	LNOC(e)	Arshad, 1966	10,100				902,750	14,840,860,000	42.0
		Jebel, 1962	8,100						38.0
		Majid, 1968	9,000- 9,800						...
		Don Mansour Unit	5,600						...
		Nasser, 1959	5,500- 7,600						38.0
		Lehib-Dor Marada Unit, 1965	9,500						50.0
		Raguba, 1961	5,400						43.0
		Beda, 1959	4,000						36.0
		Bualawn, 1972	6,000	NA	NA	NA			40.0
		Dor, 1967	6,400						33.2
		Kotla, 1963	5,500						34.0
		Sahabi B & D, 1961	9,000-10,000						39.0
		Sarir, 1961	9,000						37.2
		Amal, 1959	9,900						37.5
		Ora, 1962	7,250						40.2
		Ghani, 1978	6,000						40.0
		Bahi, 1968	3,500- 3,750						43.4
		Belhedan, 1962	7,000						33.6
		Dahra, 1959	3,100- 3,700						37.0-41.0
		Defa, 1969	5,400- 5,900						35.6
		Giaio, 1961	2,200- 6,300						35.7
		Harsh, 1978	7,400	...	491	...			34.6
		Khalifa, 1978	5,400- 7,000						34.6
		Masrab, 1978	10,000						39.6
		Samah, 1961	9,000						33.4
		Waha, 1960	6,000						36.0
		Zaggut, 1962	6,000						36.4
		Balat, 1983	5,100- 5,400						32.2
		Ali, 1975	3,900	...	1	1			50.0
		Almas, 1975	4,000	...	5	3			49.5
		Intisar A, 1967	9,750	8	...	11			45.0
		Intisar B, 1974	9,600	2	...	...			50.0
		Intisar C, 1967	9,650	1	...	5			37.5
		Intisar D, 1967	9,400	13	6	8			39.0
		Intisar E, 1968	5,300- 7,100	...	8	3			34.7
		Nafoora-Augila, 1966	2,200-10,000	13	...	42			35.5
		Aswad, 1978	6,250	8	...	...			46.0
		Sabah, 1977	5,500	...	36	2			42.0
		Zella, 1977	6,750	27	...	4			48.1
		Other	7,900- 8,900	...	1	1			40.4
		Fidaa, 1979	7,000	2	7	...			41.7
		Hakim, 1978	6,700	3	...	...			48.5
		Total Libya		**106**	**555**	**92**	**1,030,000**	**15,540,587,000**	
MALAYSIA	ESSO MALAYSIA(e)	• Bekok, 1976	5,500	23	...	7	290,497	497,452,000	47.0
		• Pulai, 1973	4,300	19	4	9			42.3
		• Tapis, 1975	6,700	70	...	36			45.0
		• Tembungo, 1971	6,000	10	1	4			38.0
		• Kepong, 1979	6,000	3	...	7			47.0
		• Tiong, 1978	5,800	28	...	14			47.0
		• Tinggi, 1980	4,400	26	...	5			48.0
		Irong Barat, 1979	3,300	10	...	2			35.0
		Semangkok, 1980	3,700	5	...	...			42.5
	SARAWAK SHELL BERHAD	• Bakau, 1971	11,000		2	1	297	6,954,000	39.0
		Baram, 1963	9,500		17	19	14,046	131,142,000	40.5
		Baronia, 1967	7,900		25	15	15,656	140,134,000	42.0
		Bayan, 1976	4,200		6	1	20,039	13,327,000	35.0
		Betty, 1967	7,900		8	6	22,403	53,755,000	38.0
		Bakor, 1972	2,000		9	2	18,727	18,990,000	35.0
		Siwa, 1973	...		...	...	1,921	548,000	25.0
		Temana, 1972	3,100		16	6	12,882	31,232,000	35.0
		Tukau, 1966	5,000		23	21	23,747	79,298,000	29.2
		West Lutong, 1966	5,600		11	16	7,164	116,297,000	39.5
	SABAH SHELL	• Barton, 1971	2,400		4	...	3,557	7,044,000	37.0
		• Erb West, 1972	6,875		9	5	8,408	18,122,000	30.0
		Ketam, 1977	...		...	...	1,811	328,000	30.0

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells Flow	No. of wells Artificial lift	No. of wells Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
	Samarang, 1972	5,700	31		31	51,084	206,546,000	37.0
	South Furious, 1974	3,300	7		8	5,151	10,332,000	30.0
	● St. Joseph, 1975	2,200	3		6	8,610	11,759,000	32.0
	Total Malaysia		**370**		**221**	**506,000**	**1,343,260,000**	
MEXICO(e) NORTH ZONE, NE	Misión, 1945	5,440	3	...	...			...
	Monterrey, 1950	6,510	1	4	1			...
	Tigrillo, 1971	3,342	...	...	11			...
	Other	...	2	9	66			...
NORTH ZONE, N.	● Arenque, 1970	11,362	17	...	...			26.0
	Constituciones, 1956	6,350	76	100	...			17.0
	Ebano-Pánuco, 1901	1,450	141	183	...			12.0
	Tamaulipas	4,200	65	87	...			19.0
	Other	...	...	...	...			...
NORTH ZONE, S.	Chicontepec, 1973	4,264	219	1	...			34.1
	● Isla de Lobos, 1963	6,875	9	...	...			40.0
	● Marsopa, 1974	10,198	7	...	...			39.0
	Naranjos-C. Azul, 1909	1,800	206	...	...			22.0
	Tres Hermanos, 1959	6,960	34	...	...			21.0
	Other	...	...	...	...			...
CENTRAL ZONE, POZA RICA	● Atún, 1966	9,040	7	...	...			37.0
	● Bagre, 1973	10,919	8	...	...			33.0
	Escolín, 1942	7,216	...	95	...			26.3
	Hallazgo, 1955	10,170	...	36	...			25.0
	Jiliapa, 1958	7,390	...	29	...			24.0
	Mecatepec, 1941	7,544	1	31	...			29.8
	Miquetla, 1959	6,480	1	56	...			35.0
	Poza Rica, 1930	7,090	...	132	...			35.0
	Pres. Alemán, 1949	8,036	44	42	...			26.0
	Remolino, 1962	10,745	...	36	...			29.5
	San Andrés, 1956	10,410	5	118	...			29.0
	Other	...	114	201	1			...
CENTRAL ZONE, CUENCA DEL PAPALOAPAN	Matapionche, 1974	11,129	21	8	16			35.6
	Other	...	22	...	9			...
SOUTHERN ZONE, NANCHITAL	Ixhuatlán Ote., 1965	1,960	1	19	14			22.6
	Moloacán, 1962	500	1	169	37			22.3
	Santa Rosa, 1952	1,312	6	...	3			25.4
CENTRAL ZONE, N. FAJA DE ORO	Acuatempa, 1955	4,085	6	...	...			21.0
	Muro, 1965	3,966	11	...	8			17.0
	Ordóñez, 1952	5,220	8	...	...			21.0
	Ocotepec, 1953	3,737	13	...	...			20.0
	Santa Agueda, 1953	4,780	3	...	...			16.0
	Other	...	50	7	...			...
SOUTHERN ZONE, EL PLAN	Agata, 1956	3,830	2	7	6			...
	Bacal, 1976	3,500	18	6	16			35.0
	Concepción, 1974	1,600	2	1	12			31.0
	Cuichapa, 1935	2,200	18	45	60			30.0
	El Plan, 1931	1,700	1	66	19			30.0
	Lacamango, 1973	1,700	8	10	9			26.3
	Los Soldados, 1953	4,492	3	15	4			32.0
	Other	...	19	7	12			...
SOUTHERN ZONE, AGUA DULCE	Blasillo, 1967	7,216	15	16	27	2,384,000	13,294,260,000	40.0
	Cinco Presidentes, 1960	6,862	10	63	61			35.0
	Burro, 1931	2,200	1	22	15			26.0
	Venta, 1954	4,730	3	17	63			41.0
	Ogarrio, 1957	5,790	14	43	137			38.0
	Otates, 1965	7,469	1	11	6			39.0
	Rodador, 1971	11,398	4	10	...			26.0
	Sánchez Magallanes, 1957	4,240	3	70	272			27.0
	San Ramón, 1967	9,517	5	24	36			30.0
	Tonalá, 1928	1,770	1	30	30			28.0
	Other	...	3	...	12			...
SOUTHERN ZONE, COMALCALCO	Agave, 1977	13,450	7	...	9			41.7
	Arroyo Zanapa, 1978	14,599	1	...	1			38.9
	Arteza, 1977	11,800	2	1	2			26.4
	Ayapa, 1972	8,200	3	...	2			7.2
	Cacho López, 1977	14,250	1	...	...			29.0
	Cáctus, 1972	14,100	14	...	16			31.5
	Carrizo, 1962	3,500	11	7	17			23.3
	Castarrical, 1967	10,080	19	19	21			29.3
	Comoapa, 1979	14,432	4	...	2			44.5
	Copano, 1977	11,890	9	...	1			43.9
	Cunduacán, 1974	13,775	8	4	30			28.9
	El Golpe, 1963	3,500	48	45	42			25.7
	Giraldas, 1977	15,225	21	...	1			37.0
	Iride, 1974	13,775	12	...	4			28.5
	Muspac, 1982	9,676	1	...	12			57.0
	Mecoacán, 1957	2,200	9	8	13			8.6
	Mora, 1981	...	61	...	2			38.1
	Mundo Nuevo, 1977	11,800	4	...	1			46.0

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
			Flow	Artificial lift	Shut-in			
	Nispero, 1974	14,100	4	...	14			34.4
	Paredon, 1978	15,690	12	...	1			39.8
	Oxiacaque	11,150	5	...	16			29.1
	Piatanal, 1978	15,900	...	...	...			30.2
	Rio Nuevo, 1975	14,950	5	...	...			34.8
	Samária (Cret), 1973	14,209	25	1	23			31.0
	Santuario, 1966	9,617	19	9	9			37.0
	Sitio Grande, 1972	13,766	19	...	3			35.0
	Sunuapa, 1978	12,887	2	...	5			32.8
	Tapijualpa, 1982	15,613	1	...	11			39.8
	Tintal, 1968	5,904	4	...	2			22.0
	Topen, 1978	11,172	2	...	1			25.4
	Tupilco, 1959	9,685	36	31	34			27.0
	Bellota, 1982	17,056	9	...	3			41.0
	Cardenas, 1979	17,548	26	...	19			38.0
	Chiapas, 1979	12,136	5	...	2			42.0
	Fenix, 1979	17,876	4	...	3			40.0
	Iris, 1979	14,432	8	...	...			39.2
	Jujo, 1980	17,548	18	...	1			32.0
	Caparroso, 1982	18,368	1	...	...			41.2
	Tecominoacan, 1983	19,519	1	...	4			37.5
	Jolote, 1983	18,119	1	...	...			39.4
	Artesa Terc., 1984	...	1	1	1			28.0
	Carmito, 1980	10,050	1	...	...			45.6
	Edén, 1983	17,590	1	...	1			38.5
	Samaria Terc., 1965	4,920	10	6	7			13.9
	Other	...	16	...	21			...
GULF OF CAMPECHE	● Cantarell, 1976	8,528	63	...	12			21.3
	● Abkatun, 1978	11,800	25	...	10			30.0
	● Ku, 1979	10,000	8	...	7			22.0
	● Pol, 1979	12,600	8	...	...			35.0
	● Chuc, 1982	13,100	1	...	2			35.0
	● Ixtoc, 1984	...	1	...	1			35.0
	Total México		**1,779**	**1,958**	**1,352**	**2,384,000**	**13,294,260,000**	
MOROCCO(e)	Sidi Rhalem, 1962	6,265- 7,185	...	...	...	277	15,931,000	...
	Rharb, 1951	4,590	...	...	...	24	...	...
	Total Morocco		...	...	...	**301**	**15,931,000**	
NETHERLANDS UNOCAL	● Helm, 1979	4,400	1	7	...	3,320	5,579,324	17.9
	● Helder, 1980	4,800	...	9	3	6,776	12,357,207	21.6
	● Hoorn, 1981	5,000	...	7	...	10,493	13,682,173	25.8
NAM	DeLier, 1955	5,200		33	...	498	16,490,000	34.8
	Rotterdam, 1984	...		...	...	696	126,000	32.0
	Berkel, 1954	...		11	...	3,287	3,095,000	20.0
	Ysselm, 1956	5,200		77	9	4,062	86,135,000	22.0
	Pynacker, 1955	...		5	...	524	5,795,000	22.0
	Wassenaar, 1956	4,200		38	3	2,043	45,670,000	18.7
	Zoetermeer, 1957	3,200		22	...	614	5,711,000	16.5
	Schoonebeek, 1944	2,500		356	...	11,911	226,656,000	35.6
	Other	...		70	21	62	612,000	...
CONOCO	Kotter, 1980	6,500	7	...	...	22,328	14,064,569	33.0
	Logger, 1982	6,500	7	...	...	10,153	2,434,667	33.5
AMOCO	● Rijn, 1982	6,600	13	...	...	16,733	3,181,393	35.0
	Total Netherlands			**663**	**38**	**93,900**	**441,589,333**	
NEUTRAL ZONE(e) AOC	● Khafji, 1961	4,400-10,300	111	...	11	234,000	4,079,725,000	28.2
	● Hout, 1969	5,300-10,500	48	...	21			33.0
GETTY & KOC	Wafra, 1953	1,100- 7,000	2	310	80			18.9-23.5
	S. Fuwaris, 1963	6,300	...	6	3			25.0
	S. Umm Gudair, 1966	8,900		16	2			24.3
	Total Neutral Zone		**161**	**332**	**117**	**234,000**	**4,079,725,000**	
NEW ZEALAND(e) SHELL-BP-TODD	● Kapuni, 1959	11,700		9	3	15,649	39,700,000	54.0
MAUI DEVELOPMENT	Maui, 1969	11,000		11	3	6,707	17,500,000	58.0
PCNZ	McKee, 1981	7,848- 8,251	11	...	3	7,567	3,590,000	38.5
	Kaimiro, 1982	11,900	1	...	...	65		46.4
	Stratford	...	...	...	1	12		41.0
	Tariki	8,550	...	...	1	...		56.0
	Toe Toe, 1984	7,500	...	...	...	...		...
	Total New Zealand			**32**	**11**	**30,000**	**60,790,000**	
NIGERIA AGIP-PHILLIPS	Akri, 1977	9,600-10,600	6		5	11,683	58,088,488	41.8
	Akri West, 1975	9,900-10,200	...		2	...	482,258	31.4
	Ashaka, 1968	9,700-12,000	1		...	634	2,087,276	36.7
	Beniku, 1974	12,000	1		1	579	3,282,153	29.5
	Ebegoro, 1976	11,500-12,000	6		3	8,658	54,654,388	35.7
	Ebocha, 1965	8,000-10,900	8		8	8,636	104,499,424	36.2
	Idu, 1973	7,750-10,700	...		...	...	23,862,581	28.0
	Kwale, 1968	10,000-11,500	2		5	1,633	2,987,214	41.5

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells Flow	Artificial lift	Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
	M'Bede, 1966	7,300- 9,400	9		5	15,191	149,509,314	41.6
	Obama, 1975	11,600-14,300	7		1	18,556	83,436,019	40.8
	Obiafu, 1973	9,300-12.200	11		6	12,716	73,318,097	43.9
	Obrikom, 1973	8,000-10,000	6		6	6,828	51,002,046	45.1
	Odugri, 1972	12,500	2		...	693	9,294,179	40.2
	Ogbogene, 1976	10,000	...		2	...	3,302,763	37.0
	Ogbogene W., 1981	13 000	..		...	353,136	56.2	
	Okpai, 1968	10,000-12,000	7		1	5,394	15,717,418	44.3
	Omodu W., 1975	11,500	1		...	1,065	4,677,348	27.4
	Oshi, 1974	9,600-11,300	11		...	11,803	48,038,887	37.7
	Tebidaba, 1975	10,300-13,300	7		3	20,714	102,518,269	34.7
	Umuoru, 1975	14,100	2		2	2,468	3,434,824	42.2
	Agwe, 1977	10,800	1		...	669	1,845,113	47.9
	Clough Creek, 1977	10,000-12,400	9		..	9,365	15,128,348	35.6
	Beniboye N.	...	8		1	9,091	3,772,486	33.9
	Taylor Creek, 1985	13,724	...		...	...	...	...
	Gilli-Gilli, 1967	7,600-14,000	2		2	172	2,765,620	46.7
GULF OIL	Abiteye, 1970	5,750- 9,400	12		...	13,105	57,710,863	39.7
	● Delta, 1965	5,600- 9,500	16		6	22,546	154,742,525	37.3
	● Delta South, 1965	7,100-10,179	13		5	26,426	21,616,702	38.4
	● Isan, 1970	5,900- 9,000	6		...	6,924	41,092,080	40.4
	Makaraba	7,100-12,005	16		5	26,821	74,042,309	27.7
	● Malu, 1969	4,800- 6,300	12		...	14,325	89,321,684	40.4
	● Mefa, 1965	8,570-12,030	4		...	24,403	426,244,016	38.1
	● Meji, 1965	5,200-10,900	19		...	18,979	135,784,128	32.7
	● Meren, 1965	5,000- 7,500	31		...	57,613	441,777,009	31.9
	● Okan, 1964	5,500- 9,245	15		...	24,403	426,244,016	38.1
	● Parabe/Eko, 1968	4,500- 8,200	14		...	9,139	95,232,881	40.4
	Utonana, 1971	7,400- 9,165	1		1	782	7,565,777	20.4
	● W. Isan, 1971	7,825-10,229	5		...	7,069	32,731,195	40.4
	Yorla South, 1974	11,389-12,635	...		...	...	834,040	...
	Jisike, 1975	6,300- 7,600	3		...	2,490	4,737,741	41.1
	Robertkiri, 1964	11,484-13,190	7		...	3,304	4,139,101	40.2
	● Tapa, 1978	8,150-10,842	9		...	12,237	241,735,285	39.5
ASHLAND(e)	Izombe-Ossu, 1974	7,600-14,000	15	...	5	12,318	44,555,619	41.04
	● Akam, 1980	7,000	9		...	9,725	10,005,861	35.2
	● Adangha, 1980	17,586-10,611	9		...	14,090	2,610,153	35.0
	● Ebughu, 1980	640-8,432	...	...	...	...	...	...
	● Nimbo, 1984	7,622	...	...	...	...	...	...
ELF(e)	Aghigo, 1972	...	18		4	4,313	20,701,903	24.8
	Okpoko, 1967	...	19		5	11,810	25,287,131	24.8
	Obodo-Jatumi, 1966	...	19		8	12,703	54,872,515	24.8
	Upomani, 1965	...	10		6	2,446	13,729,268	24.8
	Obagi, 1964	...	72		16	56,833	324,855,444	24.6
	Erema, 1972	...	4		1	5,078	7,377,156	24.6
MOBIL(e)	● Adua, 1967	6,970	5	...	1	8,551	38,687,952	30.3
	● Asabo, 1966	5,600	5	...	7	13,241	148,415,072	32.4
	● Ekpe, 1966	8,200	7	...	10	17,171	180,240,045	30.3
	● Ekpe-WW, 1977	6,810	6	...	1	10,080	28,397,258	30.3
	● Eku, 1966	5,420	1	...	5	12,782	14,669,663	30.8
	● Enang, 1968	6,600	15	...	8	18,607	110,398,457	35.1
	● Etim, 1968	6,200	8	...	1	17,273	95,449,257	32.9
	● Idoho, 1966	9,020	3	...	...	5,040	27,582,619	30.8
	● Inim, 1966	5,850	7	...	3	18,992	130,544,514	37.8
	● Mfem, 1967	5,200	3	...	...	4,993	21,975,708	36.1
	● Ubit, 1968	5,400	32	...	13	27,724	163,346,971	36.1
	● Unam, 1968	5,180	7	...	2	6,094	36,816,248	33.5
	● Utue, 1966	5,700	5	...	2	7,738	62,772,006	36.8
	● Isobo, 1968	7,345	2	...	2	1,817	6,923,351	30.8
	● Iyak	NA	...	6	...	25,306	22,233,115	38.7
	Asabo 'O'	...	1	...	1	1,228	1,112,002	35
	● Ata	...	...	...	...	...	444	...
	● Oso	...	...	...	...	...	8,421	...
	● Usari	...	...	...	...	...	5,885	...
SHELL*(WEST)	Ugh-Ogini, 1964	5,860	8	...	1	2,693	19,630,955	19
	Ugh-Uzere-East, 1960	8,500	8	...	2	5,093	83,766,258	23
	Ugh-Uzere-West, 1964	8,500	6	...	3	4,014	95,776,990	23
	Ugh-Olomoro, 1963	7,000-10,000	13	...	6	16,680	266,882,647	22
	Owelo, 1964	12,300	6	...	2	3,700	91,292,444	28
	Kokori, 1960	8,000- 9,800	20	...	11	17,632	302,231,803	42
	Afiesere, 1966	8,000- 9,000	26	...	14	12,425	109,660,761	22
	Eriemu, 1961	12,500	13	...	8	5,535	38,585,487	26
	Ughelli-East, 1959	11,800	6	...	6	3,036	87,229,796	35
	Ughelli-West, 1963	7,400-10,200	4	...	2	2,671	30,342,060	21
	Utorogu, 1964	9,000	8	...	3	6,660	126,058,431	25
	Oroni, 1964	12,000	...	...	...	11,542	24,981,985	22
	Warri River, 1961	12,264	2	...	2	1,341	14,372,996	31
	Evwreni, 1968	10,900	7	...	2	2,531	33,797,337	38
	Isoko, 1960	NA	2	...	2	819	5,507,244	19
	Odidi, 1967	10,980	19	...	6	21,776	193,250,593	37
	Opukushi, 1963	7,823	6	...	5	25,516	102,308,540	29
	Jones Creek, 1967	7,000- 9,000	18	...	19	24,110	372,259,691	29
	Opuama, 1973	NA	1	...	1	2,390	23,254,690	41
	Egwa 1967	9,350	10	...	5	10,108	125,011,909	37
	Forcados/Yokri, 1968	10,859	38	...	10	63,385	492,737,994	22
	Batan, 1968	11,000	...	...	...	629	51,965,451	27
	Escravos Beach, 1969	8,176	7	...	6,711	53,151,014	36	
	Otumara, 1969	8,176	9	...	5	18,665	139,247,168	25

WORLDWIDE PRODUCTION		Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
				Flow	Artificial lift	Shut-in			
		Saghara, 1970	8,590	2	...	2	2,496	29,185,056	31
		Ajuju, 1970	13,324	...	...	...	131	9,251,033	27
		Benisede, 1973	...	7	...	3	21,240	88,970,623	23
		Sapele, 1970	12,788	12	...	2	13,530	99,614,398	42
		Oben, 1972	12,036	17	...	8	30,292	103,955,794	40
		Opukushi N., 1977	NA	1	...	1	599	2,159,497	30
		Abura	...	2	...	2	3,142	14,508,385	44.8
		Rapele	...	1	...	1	1,764	21,893,404	44.4
		Amukpe	...	1	...	1	797	11,011,522	38.9
		Osioka	...	...	...	...	336	6,807,590	...
	SHELL (EAST)	Phi-Bomu, 1958	6,500- 7,500	14	...	2	11,413	345,063,782	36.0
		Imo River, 1959	5,800-10,000	30	...	19	34,329	439,706,113	32.0
		Nkali, 1963	12,000	...	...	...	21	27,177,627	42.0
		Elelenwa, 1959	11,000	5	...	5	2,025	29,371,790	39.0
		Umuechem, 1969	5,800-10,700	9	...	9	6,635	143,945,636	36.0
		Apara, 1960	9,000	6	...	6	3,985	22,291,896	36.0
		Porto-West, 1959	9,700	8	...	5	5,960	74,731,714	29.0
		Afam, 1956	6,000	8	...	...	4,985	56,532,758	45.0
		Yorla, 1970	11,917	7	...	7	4,443	56,069,387	44.0
		Bonny, 1959	12,254	8	...	5	6,986	84,126,897	36.0
		Carthorne C., 1963	11,000	15	...	6	35,891	243,317,265	38.0
		Ekulama, 1958	10,483	19	...	8	32,357	171,657,798	32.0
		Soku, 1958	11,500	12	...	6	10,113	100,917,364	31.0
		Orubiri, 1971	NA	2	...	1	3,801	14,153,055	38.0
		Oguta, 1965	10,300	8	...	8	9,746	124,151,378	46.0
		Utapate South, 1974	NA	6	...	3	7,059	31,728,634	44.0
		Opobo South, 1974	NA	5	...	5	5,228	12,777,211	44.0
		Korokoro	...	6	...	3	3,019	80,318,316	34.3
		Otamini	...	4	...	1	1,845	12,671,132	21.8
		Ugada	...	...	...	...	90	961,689	...
		Ahia	...	7	...	2	4,566	81,265,974	38.2
		Akpor	...	1	...	1	108	1,772,728	27.5
		Alakiri	...	6	...	5	3,244	59,810,769	38.2
		Assa	...	...	...	...	165	4,546,227	20.7
		Egbema West	...	6	...	2	6,863	74,175,778	42.2
		Ebubu	...	4	...	4	210	18,560,847	22.2
		Egbema	...	6	...	4	4,667	48,507,699	35.5
		Nun River, 1960	...	3	...	1	3,281	29,122,745	39.0
		Etelebou, 1971	12,000	4	...	2	13,378	112,618,892	33.0
		Kolo Creek, 1960	12,000	12	...	12	21,983	113,186,047	42.0
		Diebu Cr., 1966	NA	10	...	10	10,580	96,442,514	43.0
		Isimiri, 1964	5,900-11,000	3	...	1	2,444	36,300,635	28.8
		Onne, 1965	10,384	3	...	2	4,814	8,495,392	29.0
		Obigbo-North, 1963	6,500-10,000	25	...	6	15,218	161,804,400	22.0
		Ajokpori, 1967	NA	2	...	2	891	4,596,644	29.0
		Agbada, 1960	8,000-12,000	19	...	5	19,524	161,473,124	32.1
		Akuba, 1967	NA	1	...	1	355	3,874,929	29.0
		Adibawa NE, 1973	NA	3	...	1	3,811	12,299,514	26.0
		Adibawa NE, 1973	11,950	6	...	1	11,854	65,342,508	26.0
		Ubie, 1961	14,380	3	...	3	6,130	28,040,288	28.0
		Obeakpu, 1975	NA	2	...	2	3,726	14,000,806	45.0
		Nembe Creek, 1973	NA	28	...	17	72,210	155,636,346	35.0
		Akaso, 1979	NA	1	...	1	1,369	2,042,784	30
		Buguma Creek	NA	1	...	1	48	12,580,283	42.95
		Kalaekule	...	...	...	...	30	5,473	39.6
		Krakama	...	3	...	1	254	16,581,718	23.8
		Odeama Creek	...	4	...	3	11,223	7,428,720	33.3
		Tai	...	2	...	2	595	4,386,430	37.4
	TEXACO	● Pennington, 1965	5,000-10,400	2	...	10	2,565	23,232,058	38.2
		● Middleton, 1972	5,000- 7,000	3	...	16	3,167	133,927,747	36.6
		● North Apoi, 1973	4,000- 8,100	22	...	5	39,659	133,274,508	35.8
		● Funiwa, 1978	5,000- 7,000	20	...	3	25,665	23,809,774	38.2
		● Sengana, 1967	...	...	1	1	494	622,624	46.7
		Total Nigeria	...	**1,243**	...	**517**	**1,572,078**	**11,547,735,942**	
NORWAY	PHILLIPS	● Ekofisk, 1968	10,000	37	...	9	96,687	862,701,075	41.1
		● West Ekofisk, 1970	10,300	11	...	...	9,299	78,606,865	43.9
		● Cod, 1968	9,500	6	...	...	3,599	18,389,286	55.0
		● Tor, 1970	10,000	10	...	3	12,769	108,699,678	38.0
		● Albuskjell, 1972	10,400	8	...	2	7,009	47,470,371	45.0
		● Edda, 1972	10,480-10,600	6	...	1	2,632	22,101,539	41.5
		● Eldfisk, 1970	9,350-10,000	18	...	...	60,672	190,385,384	37.6
	MOBIL	● Statfjord, 1974	7,700	49	...	...	*523,202	810,450,000	39.0
	AMOCO	● Valhall, 1972	8,200	19	...	...	43,250	53,601,231	35.0
	CONOCO	● Murchison, 1975	9,900	14	...	...	*21,468	47,772,000	39.0
		Total Norway		**178**	...	**15**	**†780,587**	**2,240,177,429**	
OMAN	PDO	Lekhwair, 1968	4,352	11	17	26	17,000	46,939,000	37.8
		Natih, 1963	4,788	21	17	25	27,000	328,691,000	31.0
		Shibkah, 1976	2,591	2	...	...	...	600,000	31.0
		Fahud, 1964	2,499	37	78	79	68,000	713,978,000	32.7
		Yibal, 1962	8,465	21	117	8	141,000	522,606,000	40.2

*Norway's production share. †Total includes about 30,000 b/d of NGL.

	WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
				Flow	Artificial lift	Shut-in			
		Al Huwaisah, 1969	5,320	1	34	3	18,000	156,508,000	37.0
		Burhaan, 1984	4,011	2	...	...	1,000	921,000	36.7
		Ghaba North, 1972	2,227	3	10	6	13,000	43,463,000	35.8
		Saih Nihaydah, 1972	8,700	2	12	8	27,000	130,421,000	39.0
		Saih Rawl, 1973	9,826	8	7	9	10,000	81,776,000	41.1
		Qarn Alam, 1972	1,354	...	4	2	2,000	18,317,000	14.8
		Habur, 1975	5,800	...	1	1	...	4,220,000	14.8
		Mahjour, 1979	11,700	2	...	2	1,000	1,709,000	37.2
		Al Ghubar, 1974	1,916	2	3	1	4,000	2,153,000	23.5
		Barik, 1974	8,856	3	...	...	2,000	245,000	42.1
		Anzauz, 1984	7,098	2	...	...	5,000	2,152,000	47.8
		Hasirah, 1984	8,708	...	...	1	...	192,000	48.8
		Zauliyah, 1981	8,177	8	6	...	8,000	7,040,000	45.2
		Wafra, 1983	5,510	4	...	...	2,000	323,000	40.6
		Suwaihat, 1982	6,452	5	...	2	8,000	3,353,000	36.0
		Bahja, 1984	5,697	4	...	...	4,000	1,667,000	44.5
		Fayyadh, 1983	3,608	...	1	...	1,000	...	27.0
		Sayyala, 1981	3,690	10	...	1	27,000	5,271,000	49.7
		Zareef, 1985	3,264	...	3	...	1,000	...	46.9
		Rima, 1979	3,247	8	26	1	73,000	70,440,000	32.8
		Rasha, 1982	4,310	...	3	2	...	512,000	32.8
		Nimr, 1980	3,296	...	10	...	9,000	1,782,000	21.3
		Karim West, 1982	3,546	...	7	4	10,000	3,873,000	23.5
		Amal/Amal South, 1973	4,638	...	5	5	4,000	3,036,000	22.5
		Birba, 1978	8,528	...	...	2	1,000	7,029,000	33.4
		Kaukab, 1983	8,282	1	...	...	2,000	422,000	35.8
		Marmul, 1977	5,087	...	151	5	46,000	86,386,000	22.0
		Rahab, 1977	3,237	...	18	5	3,000	3,532,000	22.0
		Qaharir East, 1978	4,936	...	1	2	...	600,000	30.6
		Qata, 1979	4,707	...	10	4	2,000	2,471,000	26.2
		Qaharir, 1978	4,536	...	22	5	8,000	16,946,000	30.6
	ELF GROUP	Sahmah, 1978	12,400	5	...	...	7,000	19,879,000	45.1
	OCCIDENTAL PETROLEUM	Safah, 1983	6,500	11	...	...	2,537	1,456,103	37.8
		Total Oman		**173**	**563**	**208**	**554,537**	**2,290,909,103**	
PAKISTAN	**PAKISTAN OILFIELD LTD.**	Balkassar, 1946	9,398	...	3	2	454	31,305,0000	26.0
		Joya Mair, 1944	6,900	...	2	...	272	5,577,000	15.0
		Dhulian, 1936	8,899	...	...	...	43	41,299,000	48.0
		Khaur, 1915	9,306	...	1	...	11	4,163,000	...
	PAKISTAN PETROLEUM LTD.	Adhi,(c) 1978	9,118- 9,190	3	...	...	955	1,417,000	48.5
	OGDC	Toot, 1968	15,125	8	...	2	1,904	8,566,000	38.0
		Fimkassar, 1982	11,465	1	...	...	25	21,000	39.0
		Tando Alam, 1984	7,546- 8,205	8	...	1	4,124	2,598,000	41.4
	UNION TEXAS	Khaskeli, 1981	3,500	7	...	2	3,579	5,568,609	39.0
		Laghari, 1983	2,500	5	...	1	9,068	5,762,964	42.0
		Dabhi, 1984	5,500	2	...	2	1,900	425,823	39.0
		Other	...	...	...	9	...	...	31.0-46.0
	OCCIDENTAL	Dhurnal, 1984	13,100	3	...	...	15,014	7,119,910	38.0
		Total Pakistan		**37**	**5**	**19**	**37,349**	**113,823,306**	
PERU	**PETROMAR S.A.**	● Peña Negra, 1960	3,000- 8,500	28	149	94	12,000	97,558,899	38.0
		● Lobitos, 1960	3,500- 7,500	13	136	115	10,131	45,170,182	38.0
		● Litoral, 1955	1,500- 6,000	4	112	31	3,343	34,890,946	36.0-40.0
		● Providencia, 1967	3,000- 7,000	1	42	31	1,004	19,876,450	38.0-40.0
		Other	...	4	1	7	198	131,948	...
	OCCIDENTAL	● Bartra, 1979	8,000- 8,930	...	13	3	7,164	13,901,563	11.5
		● Capahuari Sur, 1973	11,800-12,900	...	16	8	13,230	122,780,700	35.6
		● Dorissa, 1978	9,800-10,600	...	10	2	12,710	29,377,566	34.0
		● Forestal, 1973	9,000- 9,900	...	8	2	7,818	28,905,094	26.7
		● Huayuri Sur, 1977	10,000-10,800	...	10	2	4,760	14,762,052	29.3
		● San Jacinto, 1978	7,200- 9,760	...	16	6	10,524	22,701,483	13.1-23.5
		● Shiviyacu, 1973	9,100-10,100	...	14	4	14,528	46,834,354	20.8
		● Jibaro, 1974	10,110-10,155	...	6	...	3,648	4,495,079	11.3
		● Jibarito, 1981	9,000- 9,650	...	5	...	5,169	6,118,153	10.8
		Other	...	1	3	4	444	1,676,259	...
	OCCIDENTAL/BRIDAS	Talara area*	1,343- 6,080	3	1,000	288	9,375	40,427,206	34.0
	PETROPERU	Talara-Lima area, 1869-1905	2,000- 9,000	143	1,740	3,875	27,452	931,164,639	34.1
		Corrientes, 1971	10,000-12,600	2	30	6	28,951	75,026,083	29.8
		Pavayacu, 1972	9,600-11,300	...	13	1	3,698	13,850,134	30.2
		N. Esperanza, 1980	10,200-10,700	...	2	3	1,863	4,009,114	44.0
		Yanayacu, 1974	11,400-13,600	...	8	1	1,569	3,061,622	19.1
		Capirona, 1972	9,800-12,000	...	4	1	1,009	2,878,096	25.3
		Valencia, 1975	10,500-11,200	...	2	1	183	497,257	44.0
		Other	...	5	33	22	699	24,932,202	...
		Total Peru		**204**	**3,373**	**4,507**	**181,470**	**1,585,027,081**	

*Secondary recovery project

WORLDWIDE PRODUCTION		Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
				Flow	Artificial lift	Shut-in			
PHILIPPINES	ALCORN	• South Nido, 1977	...	3	...	2	1,735	14,697,964	27.0
	PHILIPPINES	• Matinloc, 1979	...	5	...	...	3,367	7,265,692	42.9
	ALCORN PALAWAN	• Cadlao, 1977	5,800	2	...	...	2,746	7,987,869	47.4
		Total Philippines		**10**	...	**2**	**7,848**	**29,951,525**	
QATAR(e)	QGPC	• Bul Hanine, 1970	6,000	14	...	1	334,000	3,881,335,000	35.0
		Dukhan, 1940	6,500	116	...	45			41.1
		• Idd El Shargi, 1960	4,500- 8,250	25	...	6			35.0
		• Maydan-Mahzam, 1963	7,000	19	...	5			38.0
		Total Qatar		**174**	...	**57**	**334,000**	**3,881,335,000**	
RAS al KHAIMAH	GULF	• Saleh, 1983	14,500	6	...	...	11,067	7,602,815	50.0
		Total Ras al Khaimah		**6**	...	...	**11,067**	**7,602,815**	
SAUDI ARABIA(e)	ARAMCO	Abqaiq, 1940	6,690	NA	NA	NA	4,463,000	51,718,535,000	37.0
		Abu-Hadriya, 1940	9,340						35.0
		• Abu-Safah, 1963	6,600						30.0
		• Berri, 1964	8,300						32.0-34.0
		Dammam, 1938	4,800						35.0
		Fadhili, 1949	8,050						39.0
		Ghawar, 1948	6,920						34.0
		Harmaliyah, 1971	8,430						35.0
		Khurais, 1957	5,200						33.0
		Khursaniyah, 1956	6,560						31.0
		• Manifa, 1957	7,950						29.0
		• Marjan, 1967	6,800						33.0
		• Qatif, 1945	7,100						33.0-34.0
		• Safaniyah, 1951	5,100						27.0
		• Zuluf, 1965	5,800						32.0
		Total Saudi Arabia		**NA**	**NA**	**NA**	**4,463,000**	**51,718,535,000**	
SHARJAH	CRESCENT(e)	• Mubarek,[c] 1972	...	1	3	...	8,620	76,398,600	37.0
	AMOCO	Saaja and Moveyid,[c] 1980	10,200-12,300	16	...	...	56,380	68,089,583	50.0
		Total Sharjah		**17**	**3**	...	**65,000**	**144,488,183**	
SPAIN	SHELL ESPANA	• Amposta Marino North, 1970	10,000	2	...	1	1,506	54,673,000	37.0
	CHEVRON	Ayoluengo, 1964	4,600- 5,200	...	35	16	2,100	13,936,052	33.0
		• Casablanca, 1975	8,000	7	...	...	32,200	62,815,295	34.0
	SHELL/CAMPSA	• Castellon, 1976	9,000	3	...	...	919	14,365,000	35.0
	ENIEPSA	• Salmonete, 1974	12,600	...	...		2,281	1,526,023	44.0
		• Tarraco	...	...	...		897	14,417,859	...
		Total Spain		**12**	**35**	**17**	**39,903**	**161,734,229**	
SURINAME	STAATSOLIE	Tambaredjo, 1981	984	...	47	...	1,750	1,111,000	15.8
		Total Suriname		...	**47**	...	**1,750**	**1,111,000**	
SYRIA(e)	S.P.C.	Alian, 1974	5,900	3	8	...	185,000	896,215,000	19.0
		Gbebeh, 1976	2,300	12	17	...			18.0
		Jebisseh, 1968	2,000- 3,300	23	112	...			18.0
		Karchok, 1968	6,500	3	83	...			20.0
		Rumilan, 1962	6,500	8	39	...			24.0
		Soudie, 1959	6,500	4	449	...			24.0
		Tichrine, 1976	2,600	4	16	...			18.0
		Other		6	60	...			...
		Total Syria		**63**	**784**	...	**185,000**	**896,215,000**	
THAILAND	UNOCAL	• Erawan, 1973	7,000	71	...	40	7,112	10,971,600	54.6
		• Baanpot, 1980	7,000	...	...	10	529	1,025,600	54.6
		• Platong, 1976	8,500	35	...	7	4,697	2,064,700	59.1
		• Satun, 1980	8,500	38	...	19	3,609	1,706,600	55.1
	THAI SHELL	Sirikit, 1981	5,258- 5,976	34	...	9	19,370	18,170,296	41.0
		Sirikit West, 1983	5,500	2	...	...	546	233,112	41.0
		Total Thailand		**180**	...	**85**	**35,863**	**34,171,908**	
TRINIDAD	AMOCO	• Teak, 1971	15,191	15	38	...	36,812	208,577,992	29.3
		• Samaan, 1971	11,780	10	26	...	13,860	167,132,740	36.8
		• Poui, 1974	11,650	10	21	...	28,434	136,934,562	34.0
		• Cassia, 1973	12,700	5	...	...	7,023	7,155,148	45.0
	T.N.A.	• Soldado, 1955	11,000	74	264	...	37,608	442,286,083	...
		Fortin Offshore (FOS), 1954	...	1	10	...	260	6,844,046	...

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells			B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
			Flow	Artificial lift	Shut-in			
TRINTOPEC	Palo Seco/Erin/McKenzie, 1926	12,718	57	446	...	9,141	112,224,259	...
	Fyzabad/Apex/Quarry, 1920	11,000	9	310	...	3,855	168,352,728	...
	Coora/Quarry, 1936	14,000	3	181	...	1,778	90,045,889	...
	Galeota, 1963	6,304	...	51	...	3,282	13,529,105	...
	Other	...	14	334	...	4,927	66,631,901	...
TRINTOC*	Area IV & Guapo, 1913	10,626	17	53	...	1,204	37,942,902	...
	Parrylands, 1913	10,626	22	90	...	1,844	39,249,804	...
	Point Fortin C & W, 1907	10,626	35	106	...	2,748	39,421,525	...
	Point Fortin E., 1929	11,000	2	53	...	831	26,228,352	...
	Penal, 1936	11,067	15	64	...	1,152	61,501,495	...
	Catshill, 1950	9,693	1	37	...	409	22,839,118	...
	Brighton, 1908	7,500	5	62	...	781	72,289,301	...
	Barrackpore, 1911	11,100	14	40	...	2,193	29,569,010	...
	Guayaguayare, 1902	10,750	1	122	...	1,682	85,584,391	...
	Forest Reserve, 1913	11,000	15	280	...	4,481	256,544,067	...
	Oropouche, 1944	9,100	...	35	...	191	6,544,649	...
	Palo Seco, 1929	12,700	11	67	...	2,119	91,906,570	...
	Trinity, 1956	9,700	...	12	...	162	15,003,256	...
	Other	...	16	64	...	912	77,694,811	...
P.C.O.L	All fields	...	7	86	...	807	20,192,005	...
*Texaco fields were purchased by Trintoc in 1985	**Total Trinidad**		**359**	**2,852**	...	**168,496**	**2,302,225,709**	
TUNISIA **ELF-ETAP(e)**	● Ashtart	10,500	6	8	1	23,665	177,340,000	29.8
ELF-Serept(e)	Douleb/Semmama	1,500- 2,500	...	14	...			39.3
	Tamesmida	2,500	...	3	...			36.8
CFTP	Sidi El Itayem, 1971	7,500- 7,800	...	18	2	1,100	19,130,000	44.0
	Other	...	...	...	...	...	655,000	...
ETAP-AGIP-FINA (SODEPS)	Makrouga, 1980	6,230	3	...	...	2,420	2,358,507	45.0
	Larich, 1979	7,550	1	...	...	130	233,624	40.7
	Debech, 1980	7,550	1	...	...	103	196,436	42.6
SHELL/AGIP/ETAP	● Tazerka, 1979	4,111- 4,232	5	...	...	6,121	10,827,443	30.0
AGIP-TUNISIA (Sitep)	El Borma, 1964	8,250- 8,900	47	40	14	73,046	457,344,417	42.5
	Chouech es Saida, 1971	12,600	1	...	...	415	2,234,586	42.9
	Total Tunisia		**64**	**83**	**17**	**107,000**	**670,320,013**	
TURKEY **SHELL**	Barbes, 1971	...	...	14	2	1 938	14,651,000	29.7
	Baysu, 1964	...	...	...	...	369	67,000	33.3
	Bektas, 1985	...	...	...	...	334	160,000	33.7
	Beykan, 1964	...	...	28	4	3,485	56,831,000	33.2
	Cobantepe, 1975	...	...	...	...	50	209,000	32.8
	Katin, 1971	...	...	...	...	100	3,618,000	29.5
	Kayakoy, 1960	...	...	15	5	1,350	18,644,000	38.2
	Kayakoy-West, 1964	...	...	13	4	2,922	27,429,000	34.7
	Kervan, 1982	...	...	...	...	15	3,000	30.3
	Kurkan, 1963	...	...	12	1	2,586	47,068,000	31.4
	Kurkan-South, 1965	...	...	12	1	350	6,363,000	34.5
	Malatepe, 1970	...	...	11	...	1,001	6,481,000	32.7
	Piyanko, 1968	...	...	...	...	100	1,418,000	35.5
	Sahaban, 1965	...	...	9	4	834	12,651,000	34.5
	Sincan, 1979	...	...	6	...	816	2,248,000	31.4
	Yatir-East, 1973	...	...	4	6	633	4,815,000	30.9
	Yenikoy-East, 1974	...	...	2	...	200	3,536,000	31.3
	Yesildere, 1985	...	...	...	...	183	33,000	34.7
MOBIL	Selmo, 1964	5,800	1	18	1	5,160	62,806,537	34.2
	Bulgurdağ	4,500	1	...	2	43	2,444,661	37.9
TPAO	Raman, 1940	4,500	...	98	3	5,194	46,174,040	18.7
	Bati Raman, 1961	4,200	...	68	9	1,837	32,506,660	13.3
	Garzan, 1956	4,700	...	18	...	1,104	32,076,831	26.2
	Germik, 1968	6,500	...	7	2	551	3,074,393	18.8
	Mağrip, 1961	5,700	...	7	2	314	14,297,439	18.4
	Silivanka, 1962	8,200	...	10	...	900	7,192,926	23.0
	Beycayir, 1976	7,700	...	2	...	33	158,070	26.1
	Celikli, 1964	10,500	...	7	...	2,925	1,629,118	35.2
	Sezgin, 1970	5,600	...	...	...	...	87,559	17.0
	Oyuktas, 1972	7,600	...	...	...	...	592,005	31.0
	Devecatak, 1973	4,800	...	1	...	29	211,461	37.0
	K. Osmancik, 1971	3,800	...	2	...	253	1,892,900	37.6
	Adiyaman, 1971	5,800	...	11	1	699	7,650,314	27.6
	G. Adiyaman, 1977	5,000	...	...	...	...	115,836	20.4
	Kuzey Adiyaman, 1977	9,500	...	...	...	...	59,325	32.0
	Bölükyayla, 1977	10,300	...	...	...	...	167,663	35.0
	Saricak, 1973	5,250	...	4	...	239	2,444,095	31.5
	G. Saricak, 1973	5,250	...	11	...	542	3,482,904	31.5
	Yeniköy, 1973	6,400	...	13	...	1,278	7,767,285	31.4
	G. Kayaköy, 1976	8,600	...	3	...	195	1,752,512	30.4
	Sivritepe, 1977	8,200	...	1	...	20	465,004	33.4
	Camurlu, 1976	5,600	...	9	2	278	639,778	12.2
	Ikiztepe, 1976	4,900	...	...	...	...	88,051	11.3
	G. Sahaban, 1978	5,450	...	9	...	1,451	1,805,977	33.2

WORLDWIDE PRODUCTION		Name of field, discovery date	Depth, feet	No. of wells Flow	No. of wells Artificial lift	No. of wells Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
		G. Dincer, 1981	5,350	...	11	...	900	3,882,710	16.7
		Selmo B. Selmo, 1981	5,500	...	1	1	228	361,940	34.0
		Mehmetdere, 1982	6,700	...	1	...	12	149,057	31.0
		Karteltepe, 1982	6,550	...	2	...	383	974,501	32.0
		Cemberlitas, 1983	6,500	...	18	...	4,593	3,758,529	30.5
		Alcik	6,500	...	1	...	83	39,903	32.0
		Cukurtas, 1985	...	...	1	1	240	167,076	36.0
		B. Kozluca, 1985	...	...	7	2	503	84,628	12.0
		Akpinar, 1984	10,500	...	1	...	67	17,950	31.6
		B. Firat, 1986	8,150	...	1	...	511	73,505	34.8
		Total Turkey		**2**	**469**	**53**	**47,831**	**447,318,143**	
UNITED KINGDOM	**AMOCO**	● Montrose, 1969	8,200	3	10	...	13,957	68,483,938	40.5
		● NW Hutton, 1975	12,000	2	17	...	52,785	61,921,527	36.0
	BP	Wytch Farm Bridport Sand, 1974	2,910	...	8	3	2,763	6,995,459	37.0
		Wytch Farm Sherwood Sandstone, 1977	5,115	1	1	3	3,492	3,401,424	38.0
		East Midlands, 1939	3,500	...	65	55	1,307	24,507,386	36.0
		Kimmeridge, 1960	1,800	...	1	2	157	2,757,406	40.0
		Welton, 1983	5,000	1	13	4	348	442,877	36.0
		Nettleham, 1983	3,850	...	1	...	279	153,226	35.0
		● Forties, 1970	7,000	43	...	12	372,170	1,627,535,575	37.0
		● Buchan, 1974	8,700	6	...	2	22,266	47,310,213	33.0
		● Magnus, 1974	9,500	9	...	..	125,782	123,087,338	39.0
	BRITOIL PLC	Thistle, 1973	9,000	31	...	2	52,846	284,842,652	38.0
		Beatrice A, 1976	6,750	...	14	3	27,117	58,153,349	39.0
		Beatrice B, 1976	6,500	..	8	...	13,052	11,957,222	39.0
		Deveron, 1972	9,000	2	...	...	5,616	3,986,831	38.2
		Clyde, 1978	12,400	...	...	...	...	...	...
	CHEVRON	● Ninian, 1974	10,000	48	...	17	214,300	679,318,000	35.0
	CONOCO	● Statfjord, 1974	9,500	50	30	...	*33,000	42,606,000	39.0
		Murchison, 1975	9,900	17	9	...	*21,170	53,199,000	38.0
		Hutton, 1973	10,000	13	8	2	*15,680	8,759,000	33.0
	HAMILTON BROS. OIL & GAS LTD.	● Argyll, 1971	9,000- 9,400	2	5	...	11,100	58,400,000	38.0
		● Duncan, 1980	9,600-10,000	4	...	...	9,600	13,600,000	36.0
		● Innes, 1983	12,300-12,600	2	...	...	5,800	2,600,000	45.0
	MARATHON OIL COMPANY	● Brae South, 1975	12,700-13,437	12	...	..	97,879	85,886,193	35.0
	MOBIL	● Beryl, 1972	9,900-11,500	27	10	4	95,039	304,241,129	37.4
	OCCIDENTAL	● Claymore, 1974	8,100	...	24	3	75,978	266,600,000	30.1
		● Piper, 1973	8,100	13	11	2	170,613	717,896,000	37.0
		● Scapa, 1981	8,100	...	1	...	8,735	3,460,000	32.0
	SHELL	● Auk, 1971	NA	10		1	9,432	70,507,000	38.0
		● Brent, 1971	NA	54		12	402,220	873,902,000	37.8
		● Cormorant, 1972	NA	7		6	47,361	58,672,000	36.0
		● Cormorant N., 1974	NA	10		1	100,998	122,181,000	34.9
		● Dunlin A, 1973	NA	20		4	36,496	224,406,000	36.0
		● Fulmar, 1975	NA	...		12	156,962	178,410,000	40.0
	PHIL PS	● Maureen, 1973	8,000- 8,700	...	...	20	71,992	75,445,191	36.0
	TEXACO NORTH SEA	● Tartan, 1974	10,217-12,614	6	2	4	20,830	43,170,000	37.0-42.0
		● Highlander, 1976	8,759- 9,372	2	1	...	27,820	12,430,000	34.0-37.0
	UNOCAL	● Heather, 1973	10,800	8	19	1	16,983	63,395,036	34.3
		Total United Kingdom		**403**	**258**	**175**	**2,343,925**	**6,284,619,972**	
YEMEN, NORTH	**HUNT OIL**	Alif, 1984	NA	45		...	10,000	NA	...
		Total North Yemen		**45**		**...**	**10,000**	**NA**	
VENEZUELA(e)	**PDV/ANZOATEGUI**	Arecuna	..	...	41	75	2,151	387,206	11.2
		Boca, 1971	9,500	7	5	68	839	151,055	32.2
		Bare	..	...	65	176	1,460	262,719	10.3
		Caico Seco, 1946	6,500- 7,300	18	10	77	2,828	509,078	33.1
		Chimire, 1948-52	7,000- 7,200	28	23	148	4,870	876,553	34.6
		Dacion, 1957	6,700	5	67	71	5,371	966,818	21.8
		El Toco	...	29	0	14	2,086	375,954	52.2
		Elias, 1954	5,000- 6,470	37	38	85	6,675	1,201,421	37.5
		El Roble, 1939	3,500-11,500	27	0	38	2,725	490,516	50.0
		Guara, 1946	...	15	0	46	1,736	312,440	43.8
		Guara, 1946	5,000-10,000	9	148	209	12,975	2,335,522	25.7
		Isla	...	5	4	11	2,794	503,014	43.5
		Inca, 1948	7,250	9	12	31	1,056	189,989	28.2
		Leona, 1938	2,200-12,800	15	98	190	7,337	1,320,682	24.7
		La Ceiba, 1946	9,450	17	4	26	2,463	443,293	42.4
		Mata, 1954	8,970-10,516	58	40	312	8,823	1,588,168	32.5
		Merey, 1937	5,400- 5,700	3	76	521	19,725	355,049	12.4
		Nipa, 1945	6,000- 8,500	21	48	231	12,911	2,324,005	28.0
		Oscurote-Norte, 1952	9,513	3	10	64	702	126,343	19.2
		Oficina, 1937	5,900	8	128	343	10,750	1,934,956	22.6

*Net production Conoco (UK) Ltd. only

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells Flow	No. of wells Artificial lift	No. of wells Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
	Soto, 1950	9,500	11	1	74	1,428	257,114	37.8
	Sta. Ana, 1936	8,500	66	4	40	4,405	792,980	42.6
	San Joaquin, 1939	6,550	52	...	48	5,461	983,020	48.8
	Sta. Rosa, 1941	8,500	156	3	50	13,896	2,501,302	50.4
	Yopales, 1937	4,600	14	97	145	11,448	2,060,658	23.6
	Zanjas, 1958	13,270	8	3	6	2,588	465,936	41.0
	Zapatos, 1955	11,500	20	4	41	3,613	650,403	35.9
	Zorro, 1953	11,100	7	5	18	2,020	363,563	27.5
	Zulus, 1957	12,710	7	2	13	1,518	273,311	42.1
	Zumo, 1954	9,200	1	8	38	1,258	226,401	26.3
	La Ceibita, 1963	9,878	17	4	26	2,465	443,783	41.8
	Other	...	39	30	363	15,996	1,825,629	...
PDV/MONAGAS	Aguasay Norte, 1960	...	6	...	...	6,246	1,124,346	45.4
	Acema, 1960	...	16	14	28	14,947	2,690,524	29.0
	Ccema-Casma	...	40	8	36	18,203	3,276,483	24.1
	Aguasay, 1955	8,100-13,400	10	4	50	4,882	878,710	31.3
	Cerro Negro	...	...	82	214	14,538	2,616,789	8.6
	Jobo, 1956	3,600- 4,000	...	204	228	30,343	5,461,716	11.0
	Mata Acema	...	18	8	36	11,052	1,989,344	24.0
	Morichal, 1958	3,312	...	30	161	3,741	673,367	8.7
	Onado	...	14	...	10	4,513	812,277	27.7
	Orocual, 1953	2,954	5	19	26	3,091	556,396	25.1
	Oritupano, 1950	7,657	15	21	29	3,434	618,092	19.1
	Oritupano Norte	...	11	3	19	5,211	938,023	28.4
	Pirital, 1958	450- 1,100	...	42	39	329	59,275	30.2
	Pilon	...	...	77	62	12,033	2,165,798	12.3
	Quiriquire, 1928	7,000- 7,200	1	...	474	1,185	213,388	23.5
	Sta. Barbara, 1941	5,020- 6,500	6	34	276	984	177,083	24.2
	Tacat, 1953	1,820- 3,670	...	23	110	165	29,700	18.2
	Temblador, 1936	3,500- 4,500	9	...	39	1,714	308,546	19.5
	Other	...	3	21	184	4,084	728,579	...
PDV/BARINAS	Hato, 1965	9,550	1	12	5	2,271	408,837	24.4
	Maporal, 1957	10,950	...	11	2	2,980	537,923	26.7
	Paez, 1963	NA	...	55	11	7,882	1,418,696	19.6
	Silvan, 1949	10,860	...	20	1	3,591	646,315	29.0
	Silvestre, 1948	8,860	...	32	16	4,323	778,212	23.6
	Sinco, 1953	8,500- 9,100	...	57	27	10,209	1,837,628	23.7
	Other	...	...	4	5	313	56,331	25.9
PDV/FALCON	All fields	...	...	6	141	244	43,947	27.4
PDV/GUARICO	Budare, 1958	4,523	8	15	17	4,242	763,487	29.6
	Barzo	...	3	...	3	228	41,047	29.0
	Bella Vista	...	...	10	76	146	26,354	21.6
	Jobal	...	...	7	5	128	23,064	36.3
	Ruiz, 1949	4,500	...	6	36	119	21,392	29.9
	Saban	...	...	13	57	292	52,576	41.1
PDV/ZULIA	Boscan, 1946	...	...	149	329	31,698	5,737,498	10.4
	Bachaquero, 1930	...	21	1,435	2,301	252,560	45,713,461	23.2
	Cruces-Manueles, 1916	3,000- 8,000	2	41	89	2,354	426,196	39.2
	Cabimas, 1917	2,[illegible]00	6	682	541	60,326	10,858,598	22.8
	Centro, 1959	9,600-11,000	59	132	46	99,004	17,820,795	36.2
	La Concepcion, 1953	3,148- 800	2	58	102	4,333	779,992	34.5
	La Paz, 1925	4,268- 8,000	10	51	95	10,876	1,957,605	30.6
	Lago, 1959	11,450	29	7	29	19,915	3,584,777	32.0
	Lagunillas, 1926	3,000	88	2,549	2,517	142,381	25,628,519	25.6
	Lama, 1957	8,320	138	99	151	136,892	24,640,537	32.5
	Lamar, 1956	13,000	33	49	99	65,695	11,825,031	35.5
	Mara, 1945	5,240	6	30	69	4,403	792,590	24.0
	Mene Grande, 1914	4,130	...	200	384	5,555	999,871	18.4
	Motatan, 1952	...	6	5	19	10,659	1,918,701	20.2
	Sibucana, 1948	13,450	1	...	2	402	72,307	30.8
	Tia Juana, 1928	3,000	1	2,465	607	220,833	39,749,982	18.2
	Urdaneta, 1970	10,000	10	30	245	22,372	4,027,025	26.7
	West-Tarra, 1942	4,250- 5,500	8	9	27	2,191	394,307	39.2
	Ceuta	...	33	62	71	53,778	9,680,002	30.6
	Others	...	19	2	40	41,366	7,445,877	...
	Total Venezuela		**1,350**	**9,871**	**13,784**	**1,541,596**	**273,526,797**	

WEST GERMANY

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells Flow	No. of wells Artificial lift	No. of wells Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
BAVARIA	Arlesried, 1964	4,900		120		711	12,818,355	47.0
	Moenchsrot, 1958	4,800				305	11,398,169	36.0
	Other	...				4,004	34,763,962	...
EMSLAND	Emlichheim, 1964	2,600		1,092		3,631	42,646,363	25.0
	Georgsdorf, 1944	1,800- 2,600				6,376	98,955,349	24.0-29.0
	Meppen, 1960	4,000				974	11,850,305	28.0-30.0
	Ruehlermoor, 1949	2,000- 4,700				8,903	134,829,243	28.0-30.0
	Ruehlertwist, 1949	2,350- 2,900				1,998	30,509,476	25.0
	Scheerhorn, 1949	3,550- 3,750				2,911	49,185,890	30.0
	Other	...				1,683	30,106,762	...

WORLDWIDE PRODUCTION	Name of field, discovery date	Depth, feet	No. of wells Flow	No. of wells Artificial lift	No. of wells Shut-in	B/d average first 6 mo. 1986	Cumulative bbl to July 1, 1986	°API gravity
SCHLESWIG-HOLSTEIN	Ploen-Ost, 1959	6,400				1,331	48,183,379	36.0
	Preetz, 1962	8,350- 8,550				375	10,709,007	29.0
	Reitbrook, 1937	1,450- 2,100		224	..	1,544	37,871,634	29.0
	Schwedeneck-See, 1978	5,250				8,727	3,486,835	27.0
	Other	...				1,383	51,622,615	...
HANNOVER	Eldingen, 1949	4,750				799	18,886,493	35.0
	Hankensbuettel, 1954	4,450- 5,100				4,078	91,097,676	33.0
	Hardesse, 1958	4,300- 5,900				749	9,232,912	34.0
	Hohne, 1958	4,300- 5,900				937	38,553,670	33.0-34.0
	Leiferde, 1956	2,600		846	...	478	19,952,959	34.0
	Lueben, 1955	3,950				786	11,266,405	35.0-38.0
	Meckelfeld, 1938	1,000- 1,300				374	13,973,218	24.0-32.0
	Oelheim-Sued, 1968	7,650				769	6,940,784	33.0
	Oerrel-Sued, 1954	4,450				1,126	12,431,626	...
	Ruehme, 1954	1,950				713	9,510,411	...
	Sinstorf, 1960	6,750- 7,150				683	18,277,691	...
	Suderbruch, 1949	3,750- 7,550				605	22,481,393	19.0-38.0
	Vorhop, 1952	2,950- 6,900				2,542	16,625,632	36.0
	Other	...				3,413	239,981,324	...
UPPER RHINE VALLEY	Landau, 1955	3,950- 4,800		129	...	1,110	24,495,535	36.0
	Other	...				798	12,572,352	...
WESER-EMS	Barenburg, 1953	2,300- 3,300				2,493	35,712,439	29.0
	Bockstedt, 1954	3,750				1,268	19,912,851	...
	Bramberge, 1958	2,560- 3,300				5,913	92,206,653	29.0
	Dueste, 1954	2,600- 4,250		718		410	40,110,422	...
	Gross Lessen, 1969	3,300				1,005	21,083,532	...
	Sued-Oldenburg, 1950	1,700- 6,500				1,302	38,501,054	...
	Voigtei, 1953	1,150- 1,500				722	23,898,025	31.0-34.0
	Wehrbleck, 1947	3,400				842	15,465,162	33.0
	Other	...				3,436	31,766,291	...
	Total West Germany			***3,129**	..	**82,207**	**1,493,873,854**	

*As of Dec. 31, 1985

ZAIRE

GULF OIL	• GCO, 1970	7,000- 9,000	7	...	.	590	6,061,982	29.0
	• Mibale, 1973	5,000- 6,000	7	...	...	15,700	73,481,984	30.0
	• Mwambe, 1979	6,150	.	2	...	199	552,860	30.4
	• Motoba, 1976	11,098	1	...	...	117	160,315	44.3
	Lukami, 1983	12,400	4	...	...	4,700	4,289,179	35.0
	Libwa, 1981	5,500	...	...	2	...	...	...
ZAIREP	Liawenda, 1972	3,900	13	14	5	2,701	1,611,763	31.0
	Kinkasi, 1972	3,700	29	12	1	4,005	4,480,707	31.0
	Makelekese, 1983	3,600	3	5	...	666	450,045	31.0
	Muanda, 1972	3,600	2	4	...	563	272,508	31.0
	Kifuku, 1983	3,400	1	...	...	44	22,449	31.0
	East Mibale, 1978	6,000	2	2	1	2,778	1,866,054	34.0
	Tshiende Nsiam Fumu, 1977	8,300	...	...	1	...	5,185	34.0
	Total Zaire		**69**	**39**	**10**	**32,063**	**93,255,031**	

USSR

Field, year discovered	No. wells	1985 prod. (million bbl)	Cum. prod. 1-1-86 (million bbl)	Pay, ft.
Arlan, 1955	3,000	54	2,400	Carb., 4,429
Baku Archipelago, 1963	220	20	451	Pliocene, 8,773
Fedorovskoye, 1971	1,900	260	2,126	L. Cret., 5,900
Kholmogorskoye, 1973	800	90	447	L. Cretaceous
Kotur-Tepe, 1956	280	26	1,554	Pliocene, 8,793
Mamontovo, 1965	1,650	210	2,029	Cret'ous, 6,300
Neftianye Kamni, 1949	1,100	18	1,100	Pliocene, 5,406
Pravdinsk, 1964	550	53	879	L. Cret., 9,580
Romashkino, 1948	8,000	330	13,760	Devonian, 5,791
Samotlor, 1965	5,300	1,025	12,825	L. Cret., 7,316
Sovetskoye, 1962	350	43	882	Cret., 11,130
Usa, 1963	1,200	95	942	Paleozoic, 6,510
Ust-Balyk, 1961	1,100	75	1,591	L. Cret., 8,845
Uzen, 1961	2,000	68	1,558	Jurassic, 2,667
Yuzhno-Surgut, 1973	600	78	554	L. Cret.
Zapadno-Surgut, 1962	300	68	554	Cret., 7,628

U.S. fields with reserves exceeding 100 million bbl

State Field Disc. date	1986 prod. (1,000 bbl)	Cum. prod. 1-1-87 (1,000 bbl)	Est. rem. reserves (1,000 bbl)	Est. No. wells
ALABAMA				
Citronelle, 1955	2,059	144,013	10,841	446
ALASKA				
Endicott, 1978*	—	—	375,000	—
Granite Point, 1965	3,182	104,063	18,760	30
Kuparuk River, 1969	93,268	291,747	1,307,130	284
Lisburne, 1967†	3,370	3,370	210,000	30
McArthur River, 1965§	7,989	514,361	60,000	71
Middle Ground Shoal, 1962	3,237	150,558	7,660	45
Milne Point, 1969¶	4,934	5,638	89,428	19
Prudhoe Bay, 1967•	563,506	4,919,708	4,680,000	594
Swanson River, 1957	2,103	205,324	13,730	33

*Scheduled to begin production of 100,000 b/d in late 1987 or early 1988. †Started up in mid-December 1986. Scheduled to peak at 100,000 b/d from 200 wells in the mid-1990s. §Reserves addition of 30 million bbl due to tertiary recovery project. ¶Under "warm" shut-in for 1987, before it could attain peak flow of 30,000 b/d. •Includes about 17.12 million bbl of condensate.

State Field Disc. date	1986 prod. (1,000 bbl)	Cum. prod. 1-1-87 (1,000 bbl)	Est. rem. reserves (1,000 bbl)	Est. No. wells
ARKANSAS				
Smackover, 1922	3,778	551,004	15,000	2,160
CALIFORNIA				
San Joaquin Valley				
Belridge South, 1911	59,661	551,669	559,274	5,100
Buena Vista, 1909	1,740	646,342	41,360	870
Coalinga, 1890	11,500	733,233	172,729	2,200
Coalinga Nose, 1938	1,693	496,060	11,624	77
Coles Levee North, 1938	530	159,524	7,231	87
Cuyama, 1949	556	217,200	7,944	107
Cymric, 1909	7,080	184,513	27,441	865
Edison, 1928	1,470	131,523	26,200	685
Elk Hills, 1911	40,000	817,053	657,222	1,065
Fruitvale, 1928	797	114,300	6,922	341
Greeley, 1936	320	112,154	1,322	44
Kern Front, 1912	2,244	170,405	17,066	800
Kern River, 1899	47,900	1,112,500	876,794	5,600
Kettleman North Dome, 1928	214	456,301	621	51
Lost Hills, 1910	4,710	167,326	70,394	1,150
McKittrick, 1896	3,600	261,371	44,000	975
Midway-Sunset, 1894	57,000	1,759,444	488,200	8,475
Mount Poso, 1926	7,850	249,909	48,326	410
Rio Bravo, 1937	185	115,841	769	16
Yolumne, 1974	8,090	65,788	41,683	60
Coastal Area				
Cat Canyon E. & W., 1908	3,662	282,401	52,600	620
Carpinteria, 1966	2,700	82,640	34,740	115
Dos Cuadras, 1969	5,132	[illegible]	63,300	[illegible]
Elwood, 1928	370	105,019	922	[illegible]
Hondo, 1969*	11,335	69,739	130,907	[illegible]
Orcutt, 1901	954	164,001	12,111	[illegible]
Point Arguello, 1981†	—	—	500,000	—
Point Pedernales, 1982§	—	—	350,000	—
Rincon, 1927	1,272	146,461	48,270	210
San Ardo, 1947	7,130	398,987	142,861	470
Santa Maria Valley, 1934	2,199	194,520	44,107	154
South Mountain, 1916	801	144,519	13,512	360
Ventura, 1919	7,410	879,647	111,379	530
Los Angeles Basin				
Beta, 1976	6,800	26,883	186,795	61
Beverly Hills, 1900	2,409	118,342	46,509	114
Brea Olinda, 1880	2,430	379,471	60,636	720
Coyote East, 1909	618	107,450	14,400	114
Coyote West, 1909	923	248,328	9,138	130
Dominguez, 1923	657	268,052	8,676	113
Huntington Beach, 1920	7,110	1,054,502	64,438	967
Inglewood, 1924	3,255	339,583	60,105	380
Long Beach, 1921	2,871	904,369	22,321	399
Montebello, 1917	437	191,310	3,440	142
Richfield, 1919	1,800	185,501	30,581	229
Santa Fe Springs, 1919	1,093	[illegible]	11,000	130
Seal Beach, 1924	1,030	[illegible]	23,830	184
Torrance, 1922	1,820	210,195	17,800	260
Wilmington, 1932	36,800	2,228,556	558,560	1,900

*Western portion of field still to be developed. †Platforms Hermosa, Harvest, and Hidalgo installed. First production delayed to late 1987. §Platform Irene installed, drilling started in late 1986. First production due in first quarter 1987.

State Field Disc. date	1986 prod. (1,000 bbl)	Cum. prod. 1-1-87 (1,000 bbl)	Est. rem. reserves (1,000 bbl)	Est. No. wells
COLORADO*				
Rangely, 1933	11,484	715,166	25,000	485
FLORIDA				
Jay, 1970	5,826	352,014	64,520	119
ILLINOIS*				
Clay City, 1938	3,324	388,412	5,000	2,600
Lawrence, 1906	3,144	387,602	6,000	2,700
Louden	1,932	385,792	6,000	1,340
Main, 1906	2,244	229,207	4,000	3,356
New Harmony, 1939	1,200	151,473	3,000	1,140
Salem, 1938	2,076	382,816	5,000	1,325
KANSAS*				
Bemis-Shutts, 1928	1,188	241,840	4,812	973
Chase-Silica, 1931	1,212	267,693	4,588	1,103
Eldorado, 1917	1,236	294,288	4,364	822
Hall-Gurney, 1931	1,284	143,512	5,216	1,130
Trapp, 1937	1,404	223,535	4,996	1,000
LOUISIANA				
Onshore South				
Bay de Chene, 1941	420	95,834	18,500	45
Bay St. Elaine, 1928	504	164,060	26,040	51
Bayou Sale, 1941	900	159,886	4,900	18
Black Bay, West, 1953	2,376	140,455	14,776	86
Caillou Island, 1930	3,024	597,643	78,608	193
Cote Blanche Bay, West, 1940	600	180,133	47,835	160
Delta Farms, 1944	192	114,818	7,552	23
Garden Island Bay, 1934	1,740	218,175	35,043	165
Golden Meadow, 1938	864	133,885	5,844	220
Grand Bay, 1938	648	169,467	4,807	73
East Hackberry, 1927	1,104	107,360	9,330	60
West Hackberry, 1928	2,244	137,922	10,465	124
Iowa, 1931	132	99,000	1,000	24
Jennings, 1901	372	115,734	1,103	146
Lafitte, 1935	1,944	252,015	12,839	177
Lake Barre, 1929	1,164	202,028	22,086	65
Lake Pelto, 1929	744	115,989	18,426	40
Lake Washington, 1931	2,124	236,809	21,957	100
Leeville, 1931	840	140,457	8,410	49
Paradis, 1939	1,008	124,682	10,168	34
Quarantine Bay, 1937	924	171,250	3,076	65
Timbalier Bay, Onshore, 1938	948	270,523	25,409	114
Venice, 1937	900	180,187	9,282	62
Vinton, 1910	504	136,311	1,111	116
Weeks Island, 1945	996	223,896	23,399	47
West Bay, 1940	1,932	225,188	19,413	127
North				
Caddo-Pine Island, 1905	4,548	353,787	20,000	9,200
Delhi, 1944	1,164	210,065	36,293	116
Haynesville, 1921	996	166,606	4,004	302
Homer, 1919	432	97,514	2,269	117
Rodessa, 1935	216	105,462	2,071	65
Offshore				
Bay Marchand Blk. 2, 1949	6,427	585,295	65,305	115
Eugene Island Blk. 330, 1930	10,066	252,172	72,828	176
Grande Isle Blk. 16, 1948	3,067	259,088	90,286	51
Grand Isle Blk. 43, 1956	6,268	261,783	95,917	150
Main Pass Blk. 306, 1969	2,264	197,849	82,355	107
Main Pass Blk. 41, 1957	3,000	232,123	29,115	111
Main Pass Blk. 69, 1948	2,640	231,640	90,360	40
Mississippi Canyon Blk. 194, 1980	12,606	100,788	92,394	53
Ship Shoal Blk. 204, 1968	1,818	62,646	42,354	32

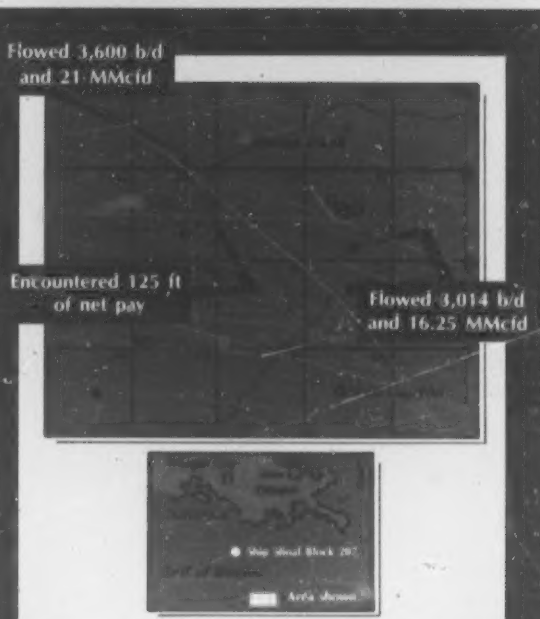
State Field Disc. date	1986 prod.	Cum. prod. 1-1-87	Est. rem. reserves	Est. No. wells
	1,000 bbl			
Ship Shoal Blk., 207, 1967	1,792	85,229	41,511	38
Ship Shoal Blk. 208, 1962	4,501	151,593	73,850	69
South Pass Blk. 24, 1950	3,000	458,540	32,000	300
South Pass Blk. 27, 1954	2,171	121,665	76,850	140
South Pass Blk. 61, 1968	10,931	135,447	50,000	132
South Pass Blk. 62, 1965	2,355	100,449	87,509	70
South Pass Blk. 65, 1969	3,396	94,267	95,860	62
South Timbalier Blk. 21, 1939	2,747	212,381	50,991	60
South Timbalier Blk. 135, 1956	1,150	136,981	28,019	46
West Delta Blk. 30, 1949	8,198	431,665	61,793	161
West Delta Blk. 73, 1962	3,334	180,422	94,568	71
MICHIGAN				
Albion-Scipio, 1957	—	120,000	—	—
MISSISSIPPI				
Baxterville, 1944	3,944	233,327	16,000	317
Heidelberg, 1944	3,776	164,824	17,000	311
Tinsley, 1939	1,060	217,874	5,000	186
MONTANA*				
Bell Creek, 1967	1,320	128,627	25,013	174
Cut Bank, 1926	996	160,389	39,175	660
Pine, 1951	1,572	102,404	8,412	105
NEW MEXICO				
Denton, 1949	830	137,269	2,433	130
Empire-Abo, 1957	2,040	216,900	53,100	190
Eunice-Monument, 1929	3,000	119,962	16,346	1,000
Hobbs, 1928	6,852	280,600	26,000	410
Maljamar, 1926	2,000	141,239	8,792	760
Vacuum, 1929	15,100	407,314	60,000	1,080
NORTH DAKOTA*				
Beaver Lodge, 1951	1,656	107,841	20,159	129
Billings Nose, 1978 (Four Eyes, Big Stick, T-R)	2,892	49,388	56,494	109
Little Knife	4,128	35,445	65,000	142
Mondak, 1976	528	16,300	83,700	100
OKLAHOMA*				
Burbank, 1920	1,368	533,025	10,669	1,105
Eola-Robberson, 1947	1,056	131,500	9,834	603
Fitts, 1933	3,156	186,092	9,000	589
Glenn Pool, 1905	1,152	325,472	5,148	714
Golden Trend, 1945	5,700	450,409	20,000	1,396
Healdton, 1913	1,656	337,570	13,104	1,000
Hewitt, 1919	2,280	268,013	18,774	923
Oklahoma City, 1928	624	740,571	7,337	174
Postle, 1960	1,332	104,836	17,172	226
Sho-Vel-Tum, 1914	18,540	—	63,468	7,616
Sooner Trend 1965	5,052	294,650	20,000	4,746
TEXAS				
District 2				
Greta, 1933	900	146,078	14,022	128
Lake Pasture, 1953	2,280	83,668	16,760	170
Tom O'Connor, 1934	13,644	727,820	73,180	745
West Ranch, 1938	3,564	374,538	14,000	372
District 3				
Anahuac, 1935	1,400	282,584	17,416	131
Conroe, 1931	5,000	719,043	41,900	304
Giddings, 1971	13,800	260,402	166,200	2,544
Hastings, 1934	3,492	690,153	79,848	262
Magnet Withers, 1936	1,812	107,372	4,776	180
Oyster Bayou, 1941	852	158,500	19,800	41
Thompson, 1931	4,320	465,028	34,872	287
Tomball, 1933	612	120,256	10,668	106
Webster, 1937	5,628	562,332	14,840	180
District 5				
Van, 1928	3,888	515,864	16,112	399
District 6				
East Texas, 1930	46,308	4,928,150	1,069,355	10,238
Fairway, 1960	3,019	187,267	23,201	97
Hawkins, 1940	11,824	804,016	60,000	517
Neches, 1953	2,052	101,016	9,000	140
Quitman, 1948	2,160	118,076	11,740	209
District 8				
Andector, 1946	3,060	177,640	10,000	38
Block 31, 1945	4,344	212,996	15,656	116
Cowden, N., 1930	14,628	462,016	45,372	1,286
Cowden, S., Foster, Johnson, 1932	10,596	481,992	40,000	1,650
Dollarhide, 1945	2,364	189,004	16,224	192
Dune, 1938	3,420	177,324	24,380	781
Fullerton, 1942	8,412	333,596	30,000	893
Goldsmith, 1934	8,688	741,268	48,000	2,177
Howard Glasscock, 1925	6,012	393,480	27,000	2,265
Iatan, E., 1926	3,468	136,584	13,000	1,276
Jordan, 1937	1,320	127,440	4,000	295
Keystone, 1930	2,292	309,372	13,082	846
McElroy, 1926	9,144	452,349	70,000	1,573
Means, 1934	7,104	215,410	30,000	748
Midland Farms, 1944	5,748	232,596	28,000	436
Sand Hills, 1931	3,384	242,807	27,000	1,441
TXL, 1944	2,400	260,132	9,000	682
Waddell, 1927	804	99,404	5,596	199
Ward Estes, N., 1927	3,900	357,613	18,000	1,602
Yates, 1926	44,558	1,103,516	850,989	1,061
District 8-A				
Anton-Irish, 1944	4,562	168,566	31,534	249
Cogdell Area, 1949	2,132	264,692	44,540	109
Diamond M, 1948	2,328	235,614	19,867	498
Kelly-Snyder, 1948	16,000	1,211,370	138,630	956
Levelland, 1938	18,780	450,628	60,000	3,026
Prentice, 1951	5,424	149,744	25,000	421
Salt Creek, 1950	6,876	229,736	30,156	158
Seminole, 1936	16,000	493,232	50,000	619
Slaughter, 1936	21,660	990,860	50,000	3,050
Spraberry Trend, 1951	24,000	611,400	50,000	7,269
Wasson, 1936	30,000	1,649,498	75,000	2,138
Welch, 1942	3,484	137,688	17,952	659
District 10				
Panhandle, 1921	9,384	1,408,250	56,276	11,926
UTAH*				
Altamont, 1955	4,404	81,688	237,273	241
Aneth, 1956	5,748	343,705	35,000	499
E. Anschutz Ranch, 1979	15,516	49,193	755,272	6
Pineview, 1975	672	26,116	120,008	18
Red Wash, 1951	1,200	122,959	15,600	141
WYOMING*				
Brady, 1960	3,288	51,230	54,478	21
Byron, 1918	1,656	118,372	10,070	65
Elk Basin, 1915	3,144	496,429	31,492	155
Frannie, 1928	1,290	113,856	7,300	88
Garland, 1906	2,700	150,000	8,000	232
Grass Creek, 1914	2,460	180,297	13,477	269
Hamilton Dome, 1918	3,156	262,251	6,000	225
Hilight, 1969	552	74,290	56,958	98
Lance Creek, 1918	708	107,665	500	22
Little Buffalo Basin, 1914	3,000	112,000	15,000	149
Lost Soldier, 1916	2,832	187,446	8,000	76
Oregon Basin, 1912	10,044	370,541	35,000	495
Painter Reservoir, 1979	6,480	41,784	84,558	47
Salt Creek, 1906	6,048	619,491	25,000	1,105
Whitney Canyon-Carter Creek, 1980	1,560	6,564	108,914	25

*Production data from Petroleum Information.

Selected giant gas fields of the world

State, province, field, date discovery	Est. 1985 produ-tion bcf	Est. reserves bcf	Cum. prod. 1-1-86 bcf	Remain-ing reserves
Alaska				
Kenai, 1959	121	2,460	2,053	407
Prudhoe Bay, 1967	972	25,944	8,631	17,313
Ark.-La.-Tex.				
Rodessa, 1930	10	3,200	800	2,460
California				
Kettleman-N. Dome, 1928	10	3,000	2,700	300
Rio Vista	10	3,500	3,455	45
Kan-Okla.				
Hugoton, 1918	400	72,000	43,800	28,200
(Kansas only)	316		18,427	
Louisiana				
Bastian Bay, 1941	35	3,600	2,268	1,332
Batman Lake, 1937	102	3,000	2,396	604
Bayou Sale, 1940	22	3,600	1,612	1,988
Monroe, 1916	47	9,400	7,244	2,156
Gibson, 1937	13	2,000	1,044	956
Hollywood, 1953	10	3,000	1,141	1,859
Houma, 1945	12	2,000	854	1,146
Lake Palourde, E., 1954	7	2,000	676	1,324
Breton Sound 30	42	4,000	2,149	1,851
W. Delta 27	20	2,000	1,600	400
Pecan Island	64	3,000	1,477	1,523
Garden City	39	2,000	1,565	435
Lake Raccourci, 1949	20	2,000	1,000	1,000
Lirette, 1937	20	2,000	1,256	744
Belle Isle, 1941	13	2,000	941	1,059
Duck Lake, 1949	2	2,000	1,041	959
Erath, 1940	6	5,052	1,239	3,813
Lake Arthur, 1937	31	2,500	2,089	411
Mississippi				
Gwinville, 1944	2	1,400	1,210	190
New Mexico				
Eunice-Jalmat et. al.	120	9,800	7,000	3,100
San Juan Basin, 1927	400	15,000	8,600	6,400
Oklahoma				
Mocane Laverne, 1952	140	3,800	1,700	2,100
Texas				
Bethany-Waskom, 1916	22	2,600	2,500	100
Carthage, 1936	100	7,600	5,700	1,900
Katy, 1935	157	6,000	800	5,200
Old Ocean, 1934	47	5,000	3,223	1,777
Gomez, 1963	84	10,000	3,800	6,200
Coyanosa, 1959	36	3,500	1,575	1,925
Greta-Tom O'Connor, 1933	11	3,000	2,400	600
La Gloria, 1939	7	4,000	3,125	875
Puckett, 1952	30	6,500	2,800	3,700
Wyoming				
Big Piney, 1938	2	2,800	850	1,950
Afghanistan				
Hodja Gugerdag	96	3,500	1,700	1,800
Algeria	1,236	120,000	—	—
Hassi R'Mel, 1956		54,000	—	—
Rhourde Nuss, 1962		3,000	—	—
Et cetera		36,000	—	—
Australia				
Kingfish, 1967	6	3,000	250	2,750
Marlin, 1966	110	3,500	1,648	1,852
Gidgealpa, 1964	—	5,400	—	—
Moomba, 1964	—	5,400	—	—
Palm Valley	—	6,000	—	—
Rankin, N., 1971	—	4,000	—	—
Canada				
Crossfield, 1952	80	4,800	2,730	2,070
Pembina, 1953	33	4,800	969	3,831
Taglu, 1971	—	3,000	—	—
China				
Ying Gehai	—	3,500	—	3,500
France				
Lacq, 1951	300	8,800	5,649	3,151
Ireland				
Kinsale Head	—	1,353	—	—
Mexico				
Poza Rica, 1930	—	6,000	—	—
Reynosa, 1948	—	3,700	—	—
José Colomo, 1951	—	4,900	—	—
Netherlands				
Groningen, 1959	1,000	58,200	18,000	40,200
Norway				
Ekofisk, 1969		3,300	—	—
Frigg, 1972	900	10,000	—	—
Statfjord		3,100	—	—
Pakistan				
Sui, 1952 et. al.	408	14,000	—	—
United Kingdom				
Hewett, 1966		4,200	—	—
Indefatigable, 1966		9,000	—	—
Leman Bank, 1966	1,412.4	12,000	—	—
Viking, 1969		5,000	—	—
Et. Cetera			—	—
U.S.S.R.				
Achak, 1966	100	5,484	4,150	1,334
Antipayutinskoye, 1978	—	7,060	—	7,060
Arkticheskoye, 1968	—	7,695	—	7,695
Astrakhanskoye, 1977	—	17,650		
Bovanenkovskoye, 1971	—	146,530	0	146,530
Gazli, 1956	400	17,718	12,000	5,718
Geofizicheskoye, 1975	—	9,796	—	9,796
Gubkinskoye, 1965	—	12,447	—	12,447
Gydanskoye, 1978	—	5,295	—	5,295
Kandym, 1966	—	5,160	—	5,160
Karachaganak, 1979	100	6,124	105	6,019
Kharasavei, 1974	—	44,665	—	44,665
Kharvutinskoye, 1976	—	13,070	—	13,070
Kirpichli, 1972	350	5,961	2,470	3,491
Komsomolskoye, 1966	—	16,152	—	16,152
Kruzenshtern, 1976	—	39,550	—	39,550
Medvezhe, 1967	1,500	54,649	20,000	34,649
Naip, 1970	350	6,156	5,000	1,156
Orenburgskoye, 1966	1,650	62,826	16,300	46,526
Pelyatkinskoye, 1969	—	6,559	—	6,559
Pestsovoye, 1974	—	6,284	—	6,284
Semakovskye, 1971	—	12,002	—	12,002
Severo-Stavropolskoye, 1950	50	8,058	7,500	558
Severo-Urengoi, 1970	—	30,279	—	30,279
Shatlyk, 1968	900	34,577	11,000	23,577
Shebelinka, 1950	100	18,638	18,000	638
Shurtan, 1974	—	19,330	—	—
Sovetabad, 1974	500	35,300	800	34,500
Sredne-Vilyui, 1965	—	7,169	10	7,159
Urengoi, 1966	9,558	285,600	31,600	254,000
Utrennyeye, 1979	—	5,825	—	5,825
Verkhne-Vilyuchanskoye, 1975	—	5,863	—	5,863
Vostochno-Tarkosalinskoye, 1971	—	13,117	4	13,113
Vuktylskoye, 1964	—	17,072	9,660	7,412
Vyngapurovskoye, 1968	530	10,915	3,695	7,220
Yamburg, 1969	0	167,900	—	167,900
Yamsoveiskoye, 1970	—	16,660	—	16,660
Yetypurovskoye, 1971	—	6,737	—	6,737
Yubileinoye, 1969	—	12,092	—	12,092
Yurkharovskoye, 1970	—	12,704	—	12,704
Yuzhno-Russkoye, 1969	—	26,506	—	26,506
Zapadno-Krestishchenskoye, 1968	600	12,720	9,000	3,720
Zapadno-Tarkosalinskoye, 1972	—	20,582	—	20,582
Zapolyarnoye, 1965	—	94,272	—	94,272
Zevardy, 1968	—	6,650	—	—

Where Placid is scoring



Block	Lessees*	Interest %	Bonus Million $	Expires
Ewing Bank				
999	Placid/Hunt	65.54	3.103	5-31-89
	Enserch	25.00		
	Opubco	9.46		
1000	Exxon	100.00	3.230	6-30-90†
1001	Placid/Hunt	76.50	5.138	5-31-89
	Enserch	12.50		
	Opubco	11.00		
Green Canyon				
29	Placid/Hunt	75.00	3.075	6-30-88
	Enserch	25.00		
30	Sun	33.00	2.771	6-30-90†
	Amerada Hess	34.00		
	TXP Operating	33.00		
31	Placid/Hunt	65.54	12.364	5-31-89
	Enserch	25.00		
	Opubco	9.46		
32	Amoco	50.00	1.754	6-30-89
	Exxon	50.00		
72	Mobil	50.00	80.221	6-30-88
	Standard	50.00		
73	Shell	100.00	22.188	6-30-88
74	Placid/Hunt	65.54	3.111	5-31-89
	Enserch	25.00		
	Opubco	9.46		
75	Amerada Hess	25.00	3.341	5-31-89
	Phillips	25.00		
	Sun	25.00		
	TXP Operating	25.00		
76	TXP Operating	33.33	2.851	5-31-89
	Sun	33.33		
	Amerada Hess	33.34		
116	Shell	100.00	11.109	6-30-88
117	Shell	100.00	2.680	6-30-88
118	Conoco	25.00	1.218	6-30-90†
	Amerada Hess	25.00		
	Pennzoil	25.00		
	Sun	25.00		

*Operator listed first. †Lease extended 3 years if a well is drilled within 5 years primary term.

Source: Placid Oil Co., Minerals Management Service.

LEGEND

CAT CRACKING
- l. Fluid
- 2. Other

CAT REFORMING
- Semiregenerative:
  - l. Conventional catalyst
  - 2. Bimetallic catalyst
- Cyclic:
  - 3. Conventional catalyst
  - 4. Bimetallic catalyst
- Other:
  - 5. Conventional catalyst
  - 6. Bimetallic catalyst

Cat reforming definitions are:

Semiregenerative. Characterized by shutdown to the reforming unit at specified intervals or at the operator's convenience for regeneration of catalyst in situ.

Cyclic. Charactierized by continuous or continual regeneration of catalyst in situ in any one of several reactors that can be isolated from and returned to the reforming operation. This is accomplished without changing feed rate or octane.

Others include:

Nonregenerative—catalyst replaced by fresh catalyst.

Continuous—continuous regeneration of a part of the catalyst in a special regenerator followed by continuous addition to the reactor.

Moving-bed catalyst systems.

Survey of operating refineries worldwide

(capacities of January 1, 1987)

Country	No. plants	Crude	Catalytic cracking	Catalytic reforming
		b/cd		
Abu Dhabi	3	**185,250**	....	**29,569**
Algeria	4	464,700	....	55,600
Angola	1	32,100	....	1,900
Argentina	11	669,800	110,750	38,300
Australia	10	626,100	181,800	154,600
Austria	1	204,000	24,000	31,000
Bahrain	1	250,000	36,000	17,100
Bangladesh	1	31,200	....	1,650
Barbados	1	3,000	....	....
Belgium	4	647,500	102,000	80,300
Bolivia	3	46,930	....	14,158
Brazil	13	1,321,100	321,900	21,600
Brunei	1	10,000	....	....
Burma	2	26,300	....	....
Cameroon	1	43,000	....	6,500
Canada	27	1,759,700	370,300	345,100
Chile	3	150,450	34,000	5,300
China, Taiwan	2	542,500	22,600	51,960
Colombia	4	226,000	91,000	6,000
Congo	1	21,000	....	2,000
Costa Rica	1	15,600	....	1,200
Cyprus	1	16,000	....	3,400
Denmark	3	166,000	....	29,900
Dominican Republic	2	44,000	....	8,300
Ecuador	3	87,600	12,600	2,780
Egypt	7	452,110	....	30,940
El Salvador	1	17,000	....	3,000
Ethiopia	1	18,000	....	2,200
Finland	2	241,000	41,800	55,100
France	15	1,834,050	252,300	239,300
Gabon	1	15,600	....	1,400
Germany	19	1,719,800	186,200	317,000
Ghana	1	28,000	....	5,550
Greece	4	384,500	27,200	31,300
Guatemala	1	16,000	....	3,000
Honduras	1	14,000	....	1,800
Hungary	3	241,500	20,000	26,000
India	12	991,070	129,408	26,690
Indonesia	6	635,800	....	60,700
Iran	4	530,000	....	63,845
Iraq	8	318,500	....	43,500
Ireland	1	56,000	....	11,000
Israel	2	180,000	20,000	26,000
Italy	21	2,678,700	276,000	296,600
Ivory Coast	2	73,000	....	13,500
Jamaica	1	35,500	....	3,540
Japan	46	4,790,050	502,750	561,420
Jordan	1	100,000	4,410	8,640
Kenya	1	95,000	....	9,000
Korea	6	862,000	....	63,200
Kuwait	4	618,000	30,000	51,000
Lebanon	2	37,000	7,250	7,492
Liberia	1	15,000	....	2,000
Libya	3	329,400	....	14,582
Madagascar	1	16,350	....	2,600
Malaysia	4	212,300	....	21,410
Martinique	1	12,800	....	3,000
Mexico	9	1,349,000	267,000	137,800
Morocco	2	81,303	5,600	13,735
Mozambique	1	17,000	....	2,500
Netherlands	7	1,400,800	125,500	150,400
Netherlands Antilles	1	320,000	42,000	15,000
New Zealand	1	54,000	....	26,000
Nicaragua	1	14,500	....	2,800
Nigeria	3	250,400	44,100	38,100
Norway	3	240,000	....	29,150
Oman	1	48,082	....	9,644
Pakistan	3	130,000	....	5,750
Panama	1	100,000	....	7,500
Paraguay	1	7,500	....	....
Peru	6	175,560	21,670	1,680
Philippines	3	286,000	23,100	40,200
Portugal	3	294,300	10,100	35,400
Puerto Rico	2	121,000	12,000	5,800
Qatar	1	62,000	....	22,030
Saudi Arabia	6	1,125,000	10,000	86,900
Senegal	1	29,800	....	2,870
Sierra Leone	1	10,000	....	....
Singapore	5	961,000	....	50,600
Somalia	1	10,000	....	....
South Africa	5	388,500	81,400	57,800
Spain	10	1,305,000	92,500	187,100
Sri Lanka	1	50,000	....	3,750
Sudan	1	23,800	....	1,700
Sweden	5	436,500	25,500	74,000
Switzerland	1	65,000	....	15,000
Syria	2	228,790	....	19,348
Tanzania	1	13,500	....	3,000
Thailand	3	191,860	9,250	25,300
Togo	1	20,000	....	4,400
Trinidad	2	300,000	25,000	31,000
Tunisia	1	34,000	....	3,300
Turkey	4	460,475	38,600	45,057
United Kingdom	15	1,779,700	345,500	367,500
Uruguay	1	45,000	5,000	3,000
Venezuela	7	1,224,700	179,400	6,000
Virgin Islands	1	600,000	....	125,000
Yemen, N.	1	10,000	....	2,500
Yemen, S.	1	170,000	....	12,000
Yugoslavia	7	482,513	10,000	62,608
Zaire	1	17,000	....	3,000
Zambia	1	25,000	....	5,600
Total	**422**	**40,116,443**	**4,176,488**	**4,656,348**

Country-by-country refining survey

WORLDWIDE REFINING	b/cd		
	Crude capacity	Catalytic cracking	Cat reforming
ABU DHABI			
Abu Dhabi National Oil Co.–Ruwais	114,000	....	[2]17,235
Umm Al-Nar 1	14,250	....	[4]2,520
Umm Al-Nar 2	57,000	....	[2]9,814
Total	**185,250**	....	**29,569**
ALBANIA			
Government-owned refineries at Ballsh, Cerrik, Stalin.			
Total	**40,000**		
ALGERIA			
Sonatrach: Arzew	60,000	....	8,600
Hassi Messaoud	23,700	....	2,000
Maison Carree	58,000	....	15,000
Skikda	323,000	....	30,000
Total	**464,700**	....	**55,600**
ANGOLA			
Petrangol SARL–Luanda	**32,100**	....	**[1]1,900**
ARGENTINA			
Destileria Argentina de Petróleo SA–Lomas de Zamora	2,000	....	....
Esso SAPA–Campana	94,400	[1]24,850	[1]8,300
Galvan	17,800	....	....
Isaura SA–Bahia Blanca	12,000	....	....
Shell Cia. Argentina de Petróleo SA–Buenos Aires	102,000	20,000	9,500
Yacimientos Petroliferos Fiscales–Campo Duran	32,000	....	....
Dock Sud	4,000	....	....
La Plata	216,000	[1]45,000	[1]9,000
Lujan de Cuyo	129,000	[1]20,900	[1]9,000
Plaza Huincul	23,000	....	[2]2,500
San Lorenzo	37,600	....	....
Total	**669,800**	**110,750**	**38,300**
AUSTRALIA			
Ampol Refineries Ltd.–Lytton	65,000	[1]26,000	[1]12,600
Australian Lubricating Oil Refinery Ltd.–Kurnell	....	....	....
BP Australia–Brisbane	42,000	[1]12,800	[2]8,500
Kwinana	100,000	[1]24,000	[1]6,400
			[2]16,400
Caltex Refining CPL–Kurnell[1]	100,000	[1]39,000	[1]25,600
Mobil Oil Australia Ltd.–Adelaide	....	....	....
Petroleum Refineries Australia PL–Adelaide	46,500	....	[2]16,000
Altona	98,600	[2]24,000	[2]28,000
Shell Refining (Australia) PL.–Clyde	64,000	31,000	13,300
Geelong	110,000	[1]25,000	27,800
Total	**626,100**	**181,800**	**154,600**

Solvent extraction: [1]4 800 b/cd.

WORLDWIDE REFINING	b/cd		
	Crude capacity	Catalytic cracking	Cat reforming
AUSTRIA			
OeMV–Schwechat	204,000	[1]24,000	[2]14,000
Total	**204,000**	**24,000**	**31,800**
BAHRAIN			
Bahrain Petroleum Co. BSC (Closed)–Sitra	250,000	[1]36,000	[2]17,100
Total	**250,000**	**36,000**	**17,100**
BANGLADESH			
Eastern Refinery Ltd.–Chittagong	**31,200**	....	**[1]1,650**
BARBADOS			
Mobil Oil Barbados Ltd.–Bridgetown	**3,000**	....	....
BELGIUM			
Belgian Refining Corp. NV–Antwerp	108,500	....	[2]12,000
Esso Belgium–Antwerp	218,000	[1]25,500	[4]38,100
Nynas Petroleum NV—Antwerp	15,000	....	....
SIBP NV–Antwerp	306,000	[1]76,500	[2]30,200
Total	**647,500**	**102,000**	**80,300**
BOLIVIA			
Yacimientos Petroliferos Fiscales Bolivianos–Cochabamba[1]	27,500	....	[1]7,758
Santa Cruz	16,430	....	[1]6,400
Sucre	3,000	....	....
Total	**46,930**	....	**14,158**

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[1] Solvent extraction: 166 b/cd.

WORLDWIDE REFINING	b/cd		
	Crude capacity	Catalytic cracking	Cat reforming
BRAZIL			
Petróleo Brasileiro SA: Araucária, Paraná[1]	144,800	[1]45,500	....
Betim, Minas Gerais	120,600	[1]30,400	....
Canoas, Rio Grande do Sul	63,300	[1]13,600	....
Cubatão, São Paulo	159,900	[1]48,300	[1]10,200
Duque de Caxias, Rio de Janeiro[2]	204,700	[1]46,300	[1]11,400
Fortaleza, Ceará	4,200	....	....
Manaus, Amazonas	8,400	[1]1,800	....
Mataripe, Bahia[3]	122,400	[1]25,000	....
Mauá, Santo André, São Paulo	27,200	[2]14,400	....
Paulínia, São Paulo	289,500	[1]39,800	....
São José dos Campos, São Paulo	156,800	[1]54,300	....
Refinaria de Petróleo Ipiranga SA–Rio Grande do Sul	9,300	[1]2,500	....
Refinaria de Petroleos de Manguinhos SA–Rio de Janeiro	10,000	....	....
Total	**1,321,100**	**321,900**	**21,600**

Solvent extraction: [1]28,400 b/d. [2]30,200 b/d (13,100 b/d for lubes). [3]3,400 (for lubes).

WORLDWIDE REFINING	b/cd		
	Crude capacity	Catalytic cracking	Cat reforming
BRUNEI			
Brunei Shell Petroleum CL–Seria	**10,000**	....	....
BULGARIA			
Government-owned refineries at Burgas, Pleven, Ruse.			
Total	**300,000**		
BURMA			
Petrochemical Industries Corp.–Chauk	6,300	....	....
Syriam	20,000	....	....
Total	**26,300**	....	....

WORLDWIDE REFINING	b/cd Crude capacity	Catalytic cracking	Cat reforming
CAMEROON			
Sonara–National Refining CL–Cape Limboh, Limbe	**43,000**	....	**[2]6,500**
CANADA			
Alberta			
Husky Oil Operations Ltd.–Lloydminster	23,500	....	....
Imperial Oil Ltd.–Edmonton	165,200	[1]47,000	[4]20,900
Petro-Canada Products Inc.–Edmonton	121,100	[1]36,000	[2]12,600
Shell Canada Ltd.–Bowden	5,000	....	[2]2,300
Scotford	50,000	....	[6]18,500
Turbo Resources Ltd.–Balzac	27,500	[1]8,800	[2]7,550
Total	**392,300**	**91,800**	**61,850**
British Columbia			
Chevron Canada Ltd.–North Burnaby	35,000	[1]10,000	[2]10,500
Husky Oil Operations Ltd.–Prince George	9,500	[1]3,300	[2]1,400
Imperial Oil Ltd.–Ioco	40,900	[1]12,400	[3]6,700
Petro-Canada Products Inc.–Port Moody	37,200	[1]12,300	[2]8,600
Taylor	17,700	[1]6,300	[2]3,000
Shell Canada Ltd.–Shellburn, Burnaby	24,000	[1]5,400	[6]2,400
Total	**164,300**	**49,700**	**32,600**
New Brunswick			
Irving Oil Ltd.–St. John	237,500	[1]17,100	[2]34,650
Total	**237,500**	**17,100**	**34,650**
Northwest Territories			
Imperial Oil Ltd.–Norman Wells	**2,900**	....	....
Nova Scotia			
Imperial Oil Ltd.–Dartmouth	82,300	[1]22,600	[4]8,600
Texaco Canada Ltd.–Halifax	20,000	[1]7,200	[2]3,600
Total	**102,300**	**29,800**	**12,200**
Ontario			
Imperial Oil Ltd.–Sarnia	123,500	[1]23,000	[2]16,400 [4]13,300
Petro-Canada Products Inc.–Clarkson[1]	60,000	....	[6]9,800
Oakville	80,500	[1]25,400	[1]5,000 [2]11,500
Shell Canada Ltd.–Sarnia	71,000	[1]14,400	[2]11,200 [4]10,800
Suncor Inc.–Sarnia	70,000	....	[2]26,000
Texaco Canada Ltd.–Nanticoke	95,000	[1]40,000	[6]24,000
Total	**500,000**	**102,800**	**128,000**
Quebec			
Petro-Canada Products Inc.–Montreal	87,100	[1]14,900	[2]31,500
Shell Canada Ltd.–Montreal	120,000	[1]21,200	[2]20,700
Ultramar Canada Inc.–St. Romuald	100,000	[1]30,000	[2]14,600
Total	**307,100**	**66,100**	**66,800**
Saskatchewan			
Consumers' Cooperative Refineries Ltd.–Regina	40,000	[1]12,600	[1]9,000
Petro-Canada Products Inc.–Moose Jaw	13,300	....	....
Total	**53,300**	**13,000**	**9,000**
Total Canada	**1,759,700**	**370,300**	**345,100**
CHILE			
Enap–Gregorio, Magallanes	9,450	....	....
Petrox SA–Concepción	72,000	[1]20,000	....
Refineria de Concón–Concón	69,000	[1]14,000	[1]5,300
Total	**150,450**	**34,000**	**5,300**

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[1]Solvent extraction: 4,600 b/cd.

WORLDWIDE REFINING	b/cd Crude capacity	Catalytic cracking	Cat reforming
CHINA			
Government-owned refineries at Anshan, Beijing, Dalian, Daqing, Fushun, Hangzhou, Jinxi, Karamai-Dushanzi, Lanchow, Lenghu, Maoming, Nanchong, Nanjing, Shanghai, Shengli, Tianjin, Yumen.			
Total	**2,200,000**		
CHINA, TAIWAN			
Chinese Petroleum Corp.–Kaohsiung	425,000	[1]22,600 [6]18,080	[2]18,080
Tao-Yuan	117,500	....	[2]15,800
Total	**542,500**	**22,600**	**51,960**
COLOMBIA			
Empresa Colombiana de Petróleos–Barrancabermeja-Santander	150,000	[1]62,000	[2]6,000
Cartagena, Bolivar	70,000	[1]29,000	....
Orito, Putumayo	1,000	....	....
Tibu, N. de Santander	5,000	....	....
Total	**226,000**	**91,000**	**6,000**
CONGO			
Coraf–Pointe-Noire	**21,000**	....	**[2]2,000**
COSTA RICA			
Refinadora Costarricense de Petroleo SA–Limón	15,600	....	[2]1,200
Total	**15,600**	....	**1,200**
CUBA			
Government-owned refineries at Cabaiguan, Havana, Santiago de Cuba.			
Total	**160,000**		
CYPRUS			
Cyprus Petroleum Refinery Ltd.–Larnaca	**16,000**	....	**[4]3,400**
CZECHOSLOVAKIA			
Government owned refineries at Bratislava, Kolin, Kralupi, Pardubice, Strazke, Zaluzi, Zyolen.			
Total	**455,000**		
DENMARK			
AS Dansk Shell–Fredericia	49,000	....	11,000
Dansk Statoil AS–Kalundborg	65,000	....	[2]8,600
Kuwait Petroleum Refining (Danmark) A/S–Skaelskor	52,000	....	[2]10,300
Total	**166,000**	....	**29,900**
DOMINICAN REPUBLIC			
Falconbridge Dominicana C por A–La Peguera	16,000	....	....
Refineria Dominicana de Petróleo SA–Haina	28,000	....	8,300
Total	**44,000**	....	**8,300**
ECUADOR			
CEPE–Esmeraldas	55,600	[1]12,600	[2]2,780
Anglo Ecuadorian Oilfields Ltd.–Sta. Elena Peninsula	31,000	....	....
Texaco–Lago-Agrio	1,000	....	....
Total	**87,600**	**12,600**	**2,780**
EGYPT			
Alexandria Petroleum Co.–Alexandria (El-Mex)	99,250	....	....
Cairo Oil Refining Co.–Mostorod	125,060	....	[2]9,000
Tanta	21,800	....	....
El Ameria Oil Refining Co.–Alexandria	60,340	....	[2]9,400
El-Nasr Petroleum Co.–El-Suez	73,450	....	....
Wadi-Feran	9,680	....	....

WORLDWIDE REFINING	b/cd Crude capacity	Catalytic cracking	Cat reforming
Suez Oil Processing Co.–El-Suez	62,530	....	[2]12,540
Total	**452,110**	....	**30,940**
El SALVADOR			
Refinería Petrólera Acajutla SA–Acajutla	17,000	....	[1]3,000
Total	**17,000**	....	**3,000**
ETHIOPIA			
Ethiopian Petroleum Corp.–Assab	**18,000**	....	**[3]2,200**
FINLAND			
Neste Oy–Naantali	44,000	[2]13,300	[5]6,800
Porvoo	197,000	[1]28,500	[1]19,800 [2]28,500
Total	**241,000**	**41,800**	**55,100**
FRANCE			
Cie. de Raffinage et de Distribution. Total France–Gonfreville L'Orcher[1]	309,000	[1]30,100	[2]45,400
La Mède	136,000	[1]30,000	[2]23,400
Mardyck	122,000	[1]21,000	[2]20,500
Cie. Rhénane de Raffinage–Reichstett-Vendenheim	86,000	[1]11,000	12,000
Elf France–Ambes	....	[1]6,800	....
Donges	201,400	[1]35,900	[2]27,300
Feyzin	170,800	[1]21,100	[2]8,400
Grandpuits	97,000	[1]25,200	[2]13,300
Esso SAF–Fos sur Mer	68,000	....	[2]10,000
Port Jerome	57,950	[1]7,200	[2]6,300
Mobil Oil Francaise–Notre Dame de Gravenchon	57,000	....	[2]11,000
Shell Francaise–Berre l'Etang	130,000	19,000	15,000
Petit Couronne	217,000	[1]19,000	41,000
Ste. Francaise des Petroles BP–Dunkirk	....	....	....
Lavera	181,900	[1]26,000	[1]5,700
Total	**1,834,050**	**252,300**	**239,300**

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[1]Solvent extraction: 9,800 b/cd.

GABON			
Ste. Gabonaise de Raffinage–Port Gentil	**15,600**	....	**[3]1,400**
GERMANY, E.			
Government-owned	**470,000**		
GERMANY, WEST			
Deutsche BP-Erdol Ingolstadt-Vohburg†	102,000	[1]17,200	[1]17,200
Deutsche Marathon Petroleum GmbH–Burghausen	70,000	....	....
Deutsche Shell AG–Godorf	170,000	....	38,000
Harburg-Grasbrook	86,000	[1]15,000	15,000
Deutsche Texaco AG–Heide	80,000	[2]9,000	[6]18,000
Elf Bitumenwerke GmbH–Brunsbuettel	....	....	....
Erdol Raffinerie Duisburg GmbH–Duisburg	37,800	....	[2]7,300
Erdoel Raffinerie Neustadt GmbH–Neustadt-Donau	144,000	[1]22,700	[1]17,700
Esso AG–Hamburg	90,000	[1]15,500	[2]12,800
Ingolstadt	95,000	[1]19,800	[2]12,800
Karlsruhe	150,000	....	[2]27,900
Mobil Oil AG–Worth	75,000	[1]15,000	[2]14,000
Oberrheinische Mineralolwerke GmbH–Karlsruhe	142,000	[1]86,000	[4]11,400
Oelwerke Julius Schindler GmbH–Hamburg	....	....	....
Ruhr Oel GmbH–Gelsenkirchen	215,400	[1]6,000	[1]11,900
Union Rheinische Braunkohlen Kraftstoff AG–Wesseling	95,000	....	[4]14,000
Wintershall AG–Lingen	91,400	....	[1]7,400
Mannheim	71,100	....	[2]18,400
Salzbergen	5,100	....	....
Total	**1,719,800**	**186,200**	**317,000**

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†Operating on a semi-integrated basis.

WORLDWIDE REFINING	b/cd Crude capacity	Catalytic cracking	Cat reforming
GHANA			
Ghanaian Italian Petroleum CL–Tema	**28,000**	....	**[1]5,550**
GREECE			
Hellenic Aspropyrgos Refinery SA–Aspropyrgos	110,000	....	[2]5,200 [2]9,500
Motor Oil (Hellas) Corinth Refineries SA–Aghii Theodori	100,000	[1]27,200	[1]8,500
Petrola Hellas SA–Elefsis	108,000	....	....
Thessaloniki Refining Co. AE–Thessaloniki	66,500	....	[2]8,100
Total	**384,500**	**27,200**	**31,300**
GUATEMALA			
Texas Petroleum Co.–Escuintla	16,000	....	[2]3,000
Total	**16,000**	....	**3,000**
HONDURAS			
Refinería Texas de Honduras SA–Puerto Cortes	14,000	....	[1]1,800
Total	**14,000**	....	**1,800**
HUNGARY			
Dunai KV–Százhalombatta	165,000	20,000	[4]26,000
Tiszai KV–Leninváros	66,500	....	....
Zalai KV–Zalaegerszeg	10,000	....	....
Total	**241,500**	**20,000**	**26,000**
INDIA			
Bharat Petroleum CL–Mahul, Bombay	140,000	[1]31,000	[1]5,200
Bongaigaon Refinery & Petrochemicals Ltd.–Bongaigaon, Assam	21,400	....	[1]1,930
Cochin Refineries Ltd.–Kerala	90,000	[1]19,100	[5]5,660
Hindustan Petroleum CL–Mahul, Bombay[1]	120,000	[1]9,000	....
Visakhapatnam	89,820	[1]18 938	....
Indian Oil CL–Barauni	66,000	....	....
Digboi	10,050	....	....
Gauhati	16,400	....	....
Gujarat	147,700	[1]19,800	[3]7,000
Haldia	55,000	....	[1]4,500
Mathura	120,000	[1]19,800	....
Madras Refineries Ltd.–Madras	114,700 [3]3,000	[1]11,770	[1]2,400
Total	**991,070**	**129,408**	**26,690**

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[1]Solvent extraction: 10,000 b/cd.

INDONESIA			
Lemigas–Cepu, Central Java	1,000	....	....
Pertamina–Balikpapan, Kalimantan	230,500	....	[6]18,000
Cilacap, Central Java	270,000	....	[3]29,100
Dumai, Central Sumatra	90,000	....	[1]13,600
Pangakalan Brandan, North Sumatra	3,600	....	....
Sungai Pakning, Central Sumatra	40,700	....	....
Total	**635,800**	....	**60,700**
IRAN			
National Iranian Oil Co.–Esfahan	200,000	....	29,600
Shiraz	40,000	....	6,245
Tabriz	80,000	....	....
Tehran	210,000	....	28,000
Total	**530,000**	....	**63,845**

Note: Present status uncertain due to Iran-Iraq war.

IRAQ			
Oil Refineries Administration–Baiji	150,000	....	22,000 16,500
Basra	70,000	....	....
Daura	71,000	....	5,000

WORLDWIDE REFINING	b/cd Crude capacity	 Catalytic cracking	 Cat reforming
K3-Haditha	7,000	....	....
Khanaqin	12,000	....	....
Mufthia	4,500	....	....
Qaiyarah, Mosul	2,000	....	....
Iraqi Company for Oil Operations–Kirkuk	2,000	....	...
Total	**318,500**	....	**43,500**

Note: Present status uncertain due to Iran-Iraq war.

IRELAND

Irish Refining Petroleum Corp. Ltd.–Whitegate	**58,000**	....	**^{4}11,000**

ISRAEL

Oil Refineries Ltd.–Ashdod	70,000	....	^{2}10,000
Haifa	110,000	^{1}20,000	^{2}16,000
Total	**180,000**	**20,000**	**26,000**

ITALY

ANIC SpA–Gela	80,000	^{1}32,000	^{2}10,000
Anonima Petroli Italiana–Falconara, Marittima	83,000	....	^{2}11,000
ERG SpA–Genoa, San Quirico	130,000	....	^{2}10,500
Esso Italiana SpA–Augusta, Siracusa	180,000	^{1}39,300	^{2}8,000 ^{4}6,600
Industrie Chimiche Italiane de Petrolio SpA–Frassino, Mantova	55,000	....	^{2}9,500
Industria Italiana Petroli–Rho	79,800	^{2}13,700	^{2}16,000
Taranto	90,900	....	^{2}16,000
Iplom SpA–Busalla	46,500	....	....
Irom–Industria Raffinazione Oli Minerali–Porto Marghera	85,000	....	^{2}16,000
Isat–Melilli	220,000	....	^{4}34,500
Lombarda Petroli SpA–Villasanta	23,500	....	
Mediterranea SpA–Milazzo	145,000	^{1}36,000	^{3}10,000
Mobil Oil Italiana SpA–Naples	100,000	^{2}18,400	^{2}12,500
Raffineria del Po SpA–Sannazaro de Burgondi	230,000	^{1}27,000	^{2}10,500
Raffineria di Roma SpA–Rome	80,500	....	^{2}14,200
Saras SpA–Sarroch	285,000	^{1}63,000	^{6}27,000
Sarpom–Trecate, Novara	241,500	^{1}16,600	^{2}18,900 ^{4}8,300
Selm-Soc. Energia Montedison–Priolo	300,000	^{1}30,000	^{2}9,000
Soc. Petrolifera Italiana–Arcola, La Spezia	25,000	....	....
Stanic–Livorno	98,000	....	^{2}17,600
Tamoil Italia SpA–Cremona	100,000	....	^{1}3,800
Total	**2,678,700**	**276,000**	**296,600**

IVORY COAST

Ste. Ivoirienne de Raffinage–Abidjan	63,000	....	^{2}13,500
Ste. Multinationale de Bitumes–Abidjan	10,000	....	....
Total	**73,000**	....	**13,500**

JAMAICA

Petrojam Ltd.–Kingston	35,500	....	^{1}3,540
Total	**35,500**	....	**3,540**

JAPAN

WORLDWIDE REFINING	b/cd Crude capacity	 Catalytic cracking	 Cat reforming
Asia Kyoseki CL–Sakaide, Kagawa	140,000	^{1}17,000	^{1}10,000
Asia Oil CL–Yokohama, Kanagawa	80,000	....	^{1}14,000
Cosmo Oil CL–Chiba	209,000	^{1}23,400	^{2}22,500
Matsuyama	....	....	^{2}4,500
Sakai	104,500	^{1}17,550	^{2}6,300
Yokkaichi City	166,250	^{1}22,500	^{2}3,600 ^{4}9,900
Fuji Kosan Oil CL–Kainan	77,600	....	....
Fuji Oil CL–Sodegaura	153,700	^{1}12,500	^{2}13,600
General Sekiyu Seisei KK–Sakai	140,400	^{1}32,500	^{2}22,500
Kawasaki	....		3,600
Idemitsu Kosan CL–Chita, Aichi	123,500		^{4}16,200
Himeji, Hyogo	104,500	....	^{2}15,300
Ichihara, Chiba	199,500	^{1}37,800	^{2}15,300
Tokuyama, Yamaguchi	95,000	^{1}20,700	^{2}3,690
Tomakomai, Hokkaido	85,500	....	^{2}16,200
Kashima Oil CL–Kashima, Ibaragi	150,000	^{1}17,500	^{4}12,500
Koa Oil CL–Marifu	119,700	^{1}14,400	^{2}8,730
Osaka	72,000	^{1}16,200	^{2}8,100
Kyokuto Petroleum Ltd.–Chiba	120,000	....	^{2}14,500
Kyushu Oil CL–Oita	130,000	^{1}16,500	^{2}8,000
Mitsubishi Oil CL–Kawasaki	75,000	....	^{2}15,000
Mizushima	220,000	^{1}30,000	^{2}30,100
Nansei Sekiyu KK–Nishihara, Okinawa	45,000	....	^{1}5,400
Nichimo Sekiyu Seisei KK–Kawasaki	76,000	....	^{1}7,400
Nihonkai Oil CL–Toyama	60,000	....	....
Nippon Mining CL–Chita	85,000	^{1}13,000	^{2}22,000
Funakawa	6,000	....	....
Mizushima	190,200	^{1}38,000	^{6}20,000
Nippon Oil CL–Niigata	26,000	....	^{2}3,500
Nippon Petroleum Refining CL–Kudamatsu	22,000	....	^{2}1,300
Muroran	150,000	^{1}19,000	^{2}19,000
Nakagusuku, Okinawa	8,000	....	^{2}2,000
Negishi	305,000	^{1}36,000	^{2}44,000
Yokohama	55,000	....	^{2}1,800
Okinawa Sekiyu Seisei–Yonashiro, Okinawa	57,000	....	....
Seibu Sekiyu KK–Onoda	134,000	....	17,000
Showa Shell Sekiyu KK–Kawasaki	135,000	....	20,000
Niigata	30,000	....	4,400
Showa Yokkaichi Sekiyu KK–Yokkaichi	207,000	22,000	38,000
Taiyo Oil CL–Ehime	65,000	....	^{2}5,000
Toa Nenryo Kogyo–Kawasaki	190,000	^{1}68,400	^{2}15,200
Shimizu	28,500	....	^{2}4,400
Wakayama	162,500	^{1}27,800	^{2}34,200
Toa Oil CL–Kawasaki	65,000	....	^{2}11,000
Toho Oil CL–Owase	40,000	....	....
Tohoku Oil CL–Sendai	83,600	....	^{2}11,700
Total	**4,790,050**	**502,750**	**561,420**

JORDAN

Jordan Petroleum Refinery–Zerka	100,000	^{1}4,410	^{2}8,640
Total	**100,000**	**4,410**	**8,640**

KENYA

Kenya Petroleum Refineries Ltd.–Mombasa	**95,000**	....	**^{2}9,000**

KOREA, N.

Government-owned, Unggi	**42,000**	^{3}30,000	....
Kukdong Oil CL–Busan^{1}	10,000	....	....
Kyung In Energy CL–Inchon	60,000	....	^{2}3,600
Modern Petroleum CL–Busan	2,000	....	....
Ssangyong Oil Refining CL–Onsan^{2}	90,000	....	^{1}4,000
Yukong Ltd.–Ulsan	345,000	....	^{2}20,300 ^{6}20,000
Total	**862,000**	....	**63,200**

Solvent extraction: ^{1}2,100 b/d. ^{2}8,000 b/d

KUWAIT

Getty Oil Co. (subsidiary of Texaco Inc.)–Mina Al-Zour	60,000	....	....
Kuwait National Petroleum Co.–Mina Abdulla	75,000	....	....
Mina Al-Ahmadi	288,000	^{1}30,000	^{2}36,000
Shuaiba	195,000	....	^{2}15,000
Total	**618,000**	**30,000**	**51,000**

LEBANON

Tripoli Oil Installations–Tripoli	20,000	^{1}7,250	^{2}4,392
Mediterranean Refining Co.–Sidon	17,000	....	^{1}3,100
Total	**37,000**	**7,250**	**7,492**

LIBERIA

Liberia Petroleum Refining–Monrovia	15,000	....	^{1}2,000
Total	**15,000**	....	**2,000**

LIBYA

Azzawiya Oil Refining Co.–Azzawiya	120,000	....	^{2}12,982

WORLDWIDE REFINING	b/cd Crude capacity	b/cd Catalytic cracking	b/cd Cat reforming
Ras Lanuf Oil & Gas Processing Co.–Ras Lanuf	201,000	....	....
Sirte Oil Co.–Brega	8,400	....	[1]1,600
Total	**329,400**	**....**	**14,582**
MADAGASCAR			
Solima–Managareza, Tamatave	**16,350**	**....**	**[4]2,600**
MALAYSIA			
Esso Malaysia Berhad–Port Dickson	47,300	....	[2]7,410
Petronas Penapisan Sdn. Berhad–Kerteh, Kemaman, Terengganu	30,000	....	....
Sarawak Shell Berhad–Luton	45,000	....	....
Shell Refining Co. Berhad–Port Dickson	90,000	....	14,000
Total	**212,300**	**....**	**21,410**
MARTINIQUE			
Ste. Anonyme de la Raffinerie des Antilles–Fort-de-France	12,800	....	[2]3,000
Total	**12,800**	**....**	**3,000**
MEXICO			
Petroleos Mexicanos–Azcapotzalco	105,000	[1]24,000	....
Cadereyta	235,000	[1]40,000	[2]20,000
Ciudad Madero	195,000	[1]43,000	[2]15,000
Minatitlan	200,000	[1]24,000 [2]16,000	[2]28,000
Poza Rica	50,000	....	....
Reynosa	9,000	....	....
Salamanca	235,000	[1]40,000	[2]24,800
Salina Cruz	165,000	[1]40,000	[4]20,000
Tula, Hidalgo	155,000	[1]40,000	[2]30,000
Total	**1,349,000**	**267,000**	**137,800**
MOROCCO			
Samir–Mohammedia	55,703	....	[4]10,935
Ste. Cherifienne des Petroles–Sidi Kacem	25,600	[2]5,600	[1]2,800
Total	**81,303**	**5,600**	**13,735**
MOZAMBIQUE			
Petromoc EE–Matola-Lingamo	**17,000**	**....**	**[3]2,500**
NETHERLANDS			
BP Raffinaderij Nederland NV–Rotterdam	437,000	[1]47,500	[2]27,000
Esso Nederland BV–Rotterdam	175,800	....	[4]25,200
Kuwait Petroleum Europoort BV–Europoort	75,000	....	[2]8,200
Shell Nederland Raffinaderij BV–Pernis	348,000	[1]78,000	45,000
Smid & Hollander Raffinaderij BV–Amsterdam	8,000	....	....
Texaco Petroleum Mij. (Nederland) BV–Pernis	207,000	....	[2]29,000
Total Raffinaderij Nederland NV–Vlissingen	150,000	....	[2]16,000
Total	**1,400,800**	**125,500**	**150,400**
NETHERLANDS ANTILLES			
Refineria Isla Curazao SA–Emmastad	320,000	[1]42,000	[2]15,000
Total	**320,000**	**42,000**	**15,000**
NEW ZEALAND			
New Zealand Refining–Whangarei	**54,000**	**....**	**26,000**
NICARAGUA			
Esso Standard Oil SA Ltd.–Managua	14,500	....	[1]2,800
Total	**14,500**	**....**	**2,800**
NIGERIA			
Nigerian Petroleum Refining CL–			

WORLDWIDE REFINING	b/cd Crude capacity	b/cd Catalytic cracking	b/cd Cat reforming
Kaduna	90,400	[1]18,100	[1]15,400
Port Harcourt, Alesa Eleme	60,000	....	[1]6,000
Warri	100,000	[1]26,000	[2]16,700
Total	**250,400**	**44,100**	**38,100**
NORWAY			
Esso Norge AS–Slagen-Valloy	90,000	....	[2]9,150
Norske Shell AS–Sola	60,000	....	10,000
Rafinor AS-Mongstad	90,000	....	[2]10,000
Total	**240,000**	**....**	**29,150**
OMAN			
Oman Refinery Co.–Mina Al Fahal	**48,082**	**....**	**[2]9,644**
PAKISTAN			
Attock Refinery Ltd.–Rawalpindi	36,000	....	....
National Refinery Ltd.–Korangi, Karachi	47,750	....	[2]2,750
Pakistan Refinery Ltd.–Karachi	46,250	....	[1]3,000
Total	**130,000**	**....**	**5,750**
PANAMA			
Refineria Panama SA–Las Minas	100,000	....	[2]7,500
Total	**100,000**	**....**	**7,500**
PARAGUAY			
Petroleos Paraguayos–Villa Elisa	**7,500**	**....**	**....**
PERU			
Petróleos del Peru:			
Conchan	6,290	....	....
Iquitos, Loreto	9,860	....	....
La Pampilla, Lima	93,900	[1]6,230	[3]1,680
Marsella, Loreto	2,040	....	....
Pucallpa	2,440	....	....
Talara	61,030	[1]15,440	....
Total	**175,560**	**21,670**	**1,680**
PHILIPPINES			
Bataan Refining Corp.–Limay	155,000	[2]15,000	[1]23,800
Caltex (Philippines) Inc.–Batangas	63,000	[1]8,100	[2]8,100
Pilipinas Shell Petroleum–Tabangao	68,000	....	8,300
Total	**286,000**	**23,100**	**40,200**
POLAND			
Government-owned refineries at Czechowice, Gdansk, Glinik Mariampolski, Jasto, Jealicze, Kralaty, L. Warynski, Plock, Trzebinia. Of these, Plock is by far the largest, accounting for roughly 80% of Polish refinery production. Its crude capacity is nearly 300,000 b/d.			
Total	**385,000**		
PORTUGAL			
Petrogal–Lisbon	....	[2]10,100	....
Leça da Palmeira, Porto	88,300	....	[6]10,500
Sines	206,000	....	[6]24,900
Total	**294,300**	**10,100**	**35,400**
PUERTO RICO			
Chevron Oil Co.–Bayamón	38,000	[1]12,000	[2]5,800
Yabucoa Sun Oil Co.–Yabucoa[1]	85,000	....	....
Total	**121,000**	**12,000**	**5,800**
Solvent extraction: [1]7,000			
QATAR			
National Oil Distribution Co.–Umm Said	62,000	....	[5]12,200 [6]9,830
Total	**62,000**	**....**	**22,030**

WORLDWIDE REFINING	b/cd		
	Crude capacity	Catalytic cracking	Cat reforming
RUMANIA			
Government-owned refineries at Bacau, Borzesti, Brazi, Brazov, Cimpina, Darmanesti, G. Gheorghiu Dej, Navodari, Onesti, Pitesti, Ploesti, Sulpacu, and Telaejen.			
Total	**617,000**		
SAUDI ARABIA			
Arabian American Oil Co.–Ras Tanura	450,000	....	....
Arabian Oil CL–Ras Al Khafji	30,000	....	....
Jeddah Oil Refinery–Jeddah	91,000	^{1}10,000	^{2}2,900
Petromin-Shell–Al-Jubail^{1}	250,000	....	15,000
Riyadh Oil Refinery–Riyadh^{2}	134,000	...	^{2}28,600
Yanbu Domestic Refinery–Yanbu	170,000	...	^{1}35,000
Total	**1,125,000**	**10,000**	**86,900**
Solvent extraction: ^{1}12,500 b/cd. ^{2}8,800 b/cd.			
SENEGAL			
Ste. Africaine de Raffinage–M'Bao (Dakar)	**29,800**	....	**^{4}2,870**
SIERRA LEONE			
Sierra Leone Petroleum Refining Co.–Freetown	**10,000**	....	....
SINGAPORE			
BP Refinery Singapore PL Pasir Panjang	28,000	....	....
Esso Singapore PL–Pulau Ayer Chawan	176,000	...	^{2}8,600
Mobil Oil Singapore PL–Jurong	193,000	....	^{2}14,000
Shell Eastern Petroleum Ltd.–Pulau Bukom	403,000	....	17,000
Singapore Refinery CPL†–Pulau Merlimau	161,000	...	^{4}11,000
Total	**961,000**	....	**50,600**
†Singapore Petroleum CPL shares percentages of refinery capacities.			
SOMALIA			
Iraqsoma Ref. Co.–Mogadishu	**10,000**	....	....
SOUTH AFRICA			
Caltex Oil SA PL–Cape Town	90,000	^{1}25,000	^{2}10,500
Mobil Oil Refining Co.–Southern Africa PL–Durban	65,000	^{1}15,000	^{2}15,000
†Durban	....	....	....
National Petroleum Refiners of South Africa PL–Sasolburg OFS	78,500	^{1}17,400	^{2}11,300
Shell and BP South Africa Petroleum Refineries PL–Durban	155,000	^{1}24,000	^{2}21,000
Total	**388,500**	**81,400**	**5[illegible]**
†South African Oil Refinery PL is owner; Mobil is operator.			
SPAIN			
Asfaltos Españoles SA–Tarragona	21,000	....	....
Cia. Española de Petróles–San Roque (Cádiz)	160,000	^{1}30,000	^{2}35,000
Tenerife	130,000	....	^{2}13,000
EMP–Cartagena, Murcia	112,000	....	^{2}25,000
La Coruña	135,000 ^{5}13,500	^{1}25,000	^{2}18,500
Puertollano, Ciudad Real	135,000		
Tarragona	180,000	....	^{2}16,000
Petróleos del Mediterraneo–Castellón de la Plana	112,000	^{1}14,000	^{2}14,000
Petronor SA–Somorrostro, Vizcaya	240,000	....	^{2}33,500
Unión Explosivos Rio Tinto SA–La Rábida, Huelva	80,000	....	^{2}14,100
Total	**1,305,000**	**92,500**	**187,100**
SRI LANKA			
Ceylon Petroleum Corp.–Sapugaskanda	50,000	....	^{2}3,750
Total	**50,000**	....	**3,750**

WORLDWIDE REFINING	b/cd		
	Crude capacity	Catalytic cracking	Cat reforming
SUDAN			
Port Sudan Refinery Ltd.–Port Sudan	**23,800**	....	**^{1}1,700**
SWEDEN			
AB Nynas Petroleum–Gothenburg	12,500	....	....
Nynäshamn	28,000	....	....
BP Raffinaderi–Gothenburg	106,000	....	^{2}20,500
Shell Raffinaderi BV–Gothenburg	80,000	....	16,000
Skandinaviska Raffinaderi AB–Brofjorden-Lysekil	210,000	^{1}25,500	^{4}37,500
Total	**436,500**	**25,500**	**74,000**
SWITZERLAND			
Raffinerie de Cressier SA–Cressier	**65,000**	....	**15,000**
SYRIA			
Banias Refining Co.–Banias	126,350	....	^{3}16,728
Homs Refinery Co.–Homs	102,440	....	^{3}2,620
Total	**228,790**	....	**19,348**
TANZANIA			
Tanzanian & Italian Petroleum Refining CL–Kigamboni, Dar es Salaam	**13,500**	....	**^{2}3,000**
THAILAND			
Esso Standard Thailand Ltd.–Cholburi	63,000	...	^{2}6,700
Petroleum Authority of Thailand–Bangchak, Bangkok	65,000	....	^{2}10,500
Thai Oil Refinery CL–Sriracha, Cholburi	63,860	^{1}9,250	^{1}2,800 ^{2}5,300
Total	**191,860**	**9,250**	**25,300**
TOGO			
Ste. Togolaise des Hydrocarbures–Lome	**20,000**	....	**^{4}4,400**
TRINIDAD			
Trinidad and Tobago Oil CL–Pointe-a-Pierre	220,000	^{1}25,000	^{4}25,000
Point Fortin	80,000	....	^{3}6,000
Total	**300,000**	**25,000**	**31,000**
TUNISIA			
Ste. Tunisienne Industries des Raffinage–Bizerte	**34,000**	....	**3,300**
TURKEY			
Anadolu Tasfiyehanesi AS–Mersin	90.000	....	^{2}10,500
Turkish Petroleum Refineries Corp.:			
Aliaga-Izmir^{1}	102,020	^{1}14,000	^{1}9,827
Batman	20,000	^{6}4,500	^{1}1,300
Izmit	248,455	^{1}20,100	^{2}23,430
Total	**460,475**	**38,600**	**45,057**
Solvent extraction: ^{1}10,273 b/cd (furfural), 6,038 b/cd (propane deasphalting).			
UNITED KINGDOM			
England			
Conoco Ltd.–South Killingholme	130,000	....	^{2}64,000 ^{5}60,000
Esso Petroleum CL–Fawley	300,200	^{1}76,500	^{2}27,900
Lindsey Oil Refinery Ltd.–Killingholm, South Humberside	190,000	^{1}35,000	^{2}33,600
Mobil Oil CL–Coryton, Essex	145,000	^{1}47,000	^{2}27,000
Phillips Imperial Petroleum Ltd.–Port Clarence	100,000	....	....
Philmac Oils Ltd.–Eastham, Cheshire	12,000	....	....
Shell U.K. Ltd.–Shell Haven	90,000	....	32,000
Stanlow	256,000	55.000	58,000
Total	**1,223,200**	**231,500**	**265,000**

REFINING

WORLDWIDE REFINING	b/cd Crude capacity	Catalytic cracking	Cat reforming
Scotland			
BP Refinery Grangemouth Ltd.–Grangemouth	178,500	[1]19,000	[2]32,000
William Briggs & Sons Ltd.—Dundee	6,000	....	....
Total	**184,500**	**19,000**	**32,000**
Wales			
Amoco UK Ltd.–Milford Haven	102,000	[1]31,500	[2]17,500
BP Refinery Llandarcy Ltd.–Llandarcy, Neath	....	....	....
Chevron Oil Co.–Milford Haven	90,000	....	[2]18,000
Pembroke Cracking Co. (65% Texaco, 35% Chevron)	....	[1]81,500	....
Texaco Ltd.–Pembroke, Dyfed	180,000	....	[6]35,000
Total	**372,000**	**113,000**	**70,500**
Total United Kingdom	**1,779,700**	**345,500**	**367,500**

URUGUAY

Administración Nacional de Combustibles, Alcohol y Portland–La Teja, Montevideo	45,000	[1]5,000	[1]3,000
Total	**45,000**	**5,000**	**3,000**

U.S.S.R.

Government-owned refineries at Achinsk, Angarsk, Baku, Batumi, Chimkent, Drogobych, Fergana, Gorki, Grozny, Guryev, Ishimbai, Khabarovsk, Kherson, Kirishi, Komsomolsk, Krasnovodsk, Kremenchug, Kuibyshev, Lisichansk, Mazheikiai, Moscow, Mozyr, Nadvornaya, Nizhnekamsk, Odessa, Omsk, Orsk, Pavlodar, Perm, Polotsk, Ryazan, Saratov, Syzran, Tuapse, Ufa, Ukhta, Vannovskiy, Volgograd, and Yaroslavl.

Total	**12,260,000**		

VENEZUELA

Corpoven–El Palito, Carabobo	105,000	[1]39,100	[1]6,000
El Toreño, Barinas	5,000	....	....
Puerto La Cruz, Anzoategui	192,500	[1]11,400	....
Santa Ana, Anzoategui	5,200	....	....
Lagoven–Judibana, Falcon	600,000	[1]71,300	....
Maraven–Bajo Grande, Maracaibo	57,000	....	....
Punta Cardon, Falcon	260,000	[1]57,600	
Total	**1,224,700**	**179,400**	**6,000**

VIRGIN ISLANDS

Hess Oil Virgin Islands Corp.–St. Croix	600,000	....	[2]125,000
Total	**600,000**	**....**	**125,000**

YEMEN, N.

Yemen Hunt Oil Co.–Marib	**10,000**	....	**[1]2,500**

YEMEN, S.

Aden Refinery Co.–Little Aden	**170,000**	....	**[1]12,000**

YUGOSLAVIA

Bosanski Brod[1]	112,835	....	[2]7,612 [6]13,500
Lendava	18,100	....	....
Novi Sad	11,100	....	....
Pancevo	29,878	....	3,996
Rijeka	160,000	....	18,500
Sisak	150,000	[1]10,000	[2]19,000
Zagreb	600	....	....
Total	**482,513**	**10,000**	**62,608**

Solvent extraction: [1]3,300 b/cd (deasphalting)

ZAIRE

Soc. Zairo-Italienne de Raffinage–Muanda	**17,000**	....	**[1]3,000**

ZAMBIA

Indeni Petroleum Refinery CL–Bwana Nkubwa Area, Ndola	**25,000**	....	**[2]5,600**

U.S. refineries

ALABAMA

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Hunt Refining Co.—Tuscaloosa	44,500	......	[2]6,000
Louisiana Land & Exploration Co.—Saraland	80,000	......	[2]21,000
Total	**124,500**	......	**27,000**

ALASKA

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
ARCO—Kuparuk	12,000	......	......
Prudhoe Bay	22,000	......	......
Chevron U.S.A. Inc.—Kenai	22,000	......	......
Mapco Petroleum Inc.—North Pole	90,000	......	......
Petro Star Inc.—North Pole	7,000	......	......
Tesoro Petroleum Corp.—Kenai	72,000	......	[2]12,000
Total	**225,000**	......	**12,000**

ARIZONA

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Intermountain Refining CI—Fredonia	5,710	......	......

ARKANSAS

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Berry Petroleum Co.—Stevens	3,500	......	......
Cross Oil & Refining Co. of Arkansas—Smackover	7,000	......	......
Lion Oil Co.—El Dorado[1]	48,000	[1]18,500	[2]9,000
Macmillan Ring-Free Oil CI—Norphlet	5,870	......	......
Total	**64,370**	**18,500**	**9,000**

Solvent extraction: [1]5,500 b/d.

CALIFORNIA

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Anchor Refining CI—McKittrick	10,000	......	......
ARCO—Carson	216,000	[1]75,000	[2]45,000
Beacon Oil Co.—Hanford	17,300	......	[2]3,600
Champlin Petroleum Co.—Wilmington	61,000	[1]38,000	[5]14,500
Chevron U.S.A. Inc.—El Segundo	405,000	[1]60,000	[2]60,000
Richmond[1]	365,000	[1]63,000	[2]84,000
Conoco Inc.—Santa Maria	9,500	......	......
Edgington Oil CI—Long Beach	41,600	......	......
Exxon Co.—Benicia	120,500	[1]62,000	[3]28,000
Fletcher Oil & Refining Co.—Carson	29,500	[1]10,000	[2]4,200
Golden Bear Division, Witco Chemical Corp.—Oildale	10,818	......	......
Golden West Refining Co.—Santa Fe Springs	40,600	[1]13,500	[2]19,000
Huntway Refining Co.—Benicia	8,400	......	......
Wilmington	5,500	......	......
Kern County Refinery Inc.—Bakersfield	20,000	......	[2]3,000
Macmillan Ring-Free Oil CI—Signal Hill	13,000	......	......
Mobil Oil Corp.—Torrance	123,000	[1]63,000	[2]36,000
Newhall Refining CI—Newhall	21,400	......	[1]2,300
Oxnard Refinery—Oxnard	NR	......	......
Pacific Refining Co.—Hercules	55,000	......	[2]15,000
San Joaquin Refining CI—Bakersfield	18,000	......	......
Shell Oil Co.—Martinez	135,200	[1]67,000	[3]27,000
Wilmington	117,000	[1]35,000	[2]24,000
Texaco Refining & Marketing Inc.—Bakersfield	38,000	......	[2]23,000
Wilmington	75,000	[1]28,000	[2]35,000
Tosco Corp.—Martinez	126,000	[1]55,000	[2]20,000 [6]23,000
Unocal Corp.—Los Angeles	108,000	[1]47,000	[2]52,000
Rodeo	118,000	......	[2]28,000
Total	**2,312,593**	**616,500**	**546,600**

Solvent extraction: [1]50,000 b/sd.

COLORADO

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Asamera Oil U.S. Inc.—Commerce City	NR	[1]9,000	[2]10,000

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Conoco Inc.—Commerce City	41,500	[1]15,000	[2]7,000
Total	**74,750**	**24,000**	**17,000**
DELAWARE			
Texaco Refining and Marketing Inc.—Delaware City	140,000	[1]60,000	[2]18,000 [6]35,000
Total	**140,000**	**60,000**	**53,000**
GEORGIA			
Amoco Oil Co.—Savannah	28,000	......	......
Young Refining Corp.—Douglasville	7,000	......	......
Total	**35,000**	......	......
HAWAII			
Chevron U.S.A. Inc.—Barber's Point	48,000	[1]22,000	......
Hawaiian Independent Refinery Inc.—Ewa Beach	68,000	......	[2]12,000
Total	**116,000**	**22,000**	**12,000**
ILLINOIS			
Calumet Industries Inc.—Burnham	...	......	......
Clark Oil & Refining Corp.—Blue Island	64,600	[1]25,000	[2]30,500
Marathon Petroleum Co.—Robinson	195,000	[1]38,000	[4]35,000 [6]30,000
Mobil Oil Corp.—Joliet	180,000	[1]98,000	[2]46,000
Shell Oil Co.—Wood River	274,000	[1]94,000	[2]22,000 [3]75,000
Unocal Corp.—Lemont	151,000	[1]58,000	[2]29,800
Total	**924,600**	**339,000**	**280,300**
INDIANA			
Amoco Oil Co.—Whiting	350,000	[1]140,000	[3]75,000
Indiana Farm Bureau Cooperative Association Inc.—Mt. Vernon	20,600	[1]7,000	[2]4,000
Rock Island Refining Corp.—Indianapolis[1]	45,700	[1]20,000	[2]10,000
Young Refining Corp.—Laketon	9,500	......	......
Total	**425,800**	**167,000**	**89,000**
Solvent extraction: [1]4,500.			
KANSAS			
Derby Refining Co.—El Dorado[1]	28,000	[1]14,500	[2]5,000
Wichita	28,800	[1]17,000	[2]7,000
Farmland Industries Inc.—Coffeyville	56,500	[1]23,000	[2]16,000
Phillipsburg	26,400	......	[1]5,300
National Cooperative Refinery Association—McPherson	70,000	[1]20,000	[2]15,000
Texaco Refining & Marketing Inc.—El Dorado	80,000	[1]34,000	[2]25,000
Total Petroleum Inc.—Arkansas City	50,000	[1]19,000	[2]16,300
Total	**339,700**	**127,500**	**89,600**
Solvent extraction: [1]4,500 b/sd.			
KENTUCKY			
Ashland Petroleum Co.—Catlettsburg[1]	213,400	[1]60,000 §40,000	[2]25,500
Somerset Refinery Inc.—Somerset	5,500	......	[4]1,000
Total	**218,900**	**100,000**	**53,500**
Solvent extraction: [1]10,000 b/sd. §Reduced crude converter.			
LOUISIANA			
Atlas Processing Co., Division of Pennzoil—Shreveport	46,200	......	[2]10,000
BP Oil Inc.—Belle Chasse	NR	[1]89,000	[2]37,500
Calcasieu Refining Co.—Lake Charles	13,500	......	......
Calumet Refining Co.—Princeton	4,100	......	......
Canal Refining Co.—Church Point	7,858	......	[1]1,600
Citgo Petroleum Corp.—Lake Charles	320,000	[1]150,000	[2]46,000 [5]45,000

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Claiborne Gasoline Co.—Lisbon	NR	......	[2]2,000
Conoco Inc.—Lake Charles	156,500	[1]36,000	[2]15,400 [5]12,000
Cotton Valley Refinery (Kerr-McGee Refining Corp.)—Cotton Valley	7,800	......	......
Exxon Co.—Baton Rouge	455,000	[1]155,000	[4]95,000
Hill Petroleum Co.—Krotz Springs	55,300	[1]28,000	[2]12,500
St. Rose	33,000	......	......
Marathon Petroleum Co.—Garyville	255,000	[1]75,000	[6]50,000
Murphy Oil USA Inc.—Meraux[1]	92,500	[1]35,000	[6]23,000
Placid Refining Co.—Port Allen[2]	NR	[1]17,000	[2]10,000
Shell Oil Co.—Norco	215,000	[1]90,000	[2]18,000 [3]38,000
Tenneco Oil Co.—Chalmette	130,000	[1]45,000	[2]27,000 [5]18,000
Texaco Refining & Marketing Inc.—Convent	225,000	[1]70,000	[2]40,000
Total	**2,266,133**	**790,000**	**501,000**
Solvent extraction: [1]12,000 b/sd. [2]5,000 b/sd.			
MICHIGAN			
Crystal Refining Co.—Carson City	4,000	......	......
Lakeside Refining Co.—Kalamazoo	5,600	......	[1]1,000
Marathon Petroleum Co.—Detroit	68,500	[1]27,000	[2]17,000
Total Petroleum Inc.—Alma	42,000	[1]18,000	[2]12,000
Total	**120,100**	**45,000**	**30,000**
MINNESOTA			
Ashland Petroleum Co.—St. Paul Park	67,143	[1]23,000	[2]24,500
Koch Refining Co.—Rosemount	155,000	[1]55,000	[6]26,000
Total	**222,143**	**78,000**	**50,500**
MISSISSIPPI			
Amerada-Hess Corp.—Purvis	30,000	[2]18,000	[2]5,800
Chevron U.S.A. Inc.—Pascagoula	295,000	[1]56,000	[2]90,000
Ergon Refining Inc.—Vicksburg	20,500	......	......
Southland Oil Co.—Lumberton	5,800	......	......
Sandersville	11,000	......	......
Total	**362,300**	**74,000**	**95,800**
MONTANA			
Cenex—Laurel[1]	40,400	[1]12,000	[2]12,000
Conoco Inc.—Billings[2]	48,500	[1]15,500	[2]12,500
Exxon Co.—Billings	42,000	[1]21,000	[1]10,000
Flying J Inc.—Cut Bank	5,600	......	[2]2,200
Montana Refining Co.—Great Falls	6,300	[1]2,100	[2]1,000
Total	**142,800**	**50,600**	**37,700**
Solvent extraction: [1]4,000 b/sd. [2]8,500 b/sd (PDA).			
NEVADA			
Nevada Refining Co.—Tonopah	**4,500**	......	......
NEW JERSEY			
Amerada-Hess Corp.—Port Reading	......	[1]55,000	......
Chevron U.S.A. Inc.—Perth Amboy	80,000	......	......
Coastal Eagle Point Oil Co.—Westville	90,000	[1]40,000	[2]38,000
Exxon Co.—Linden	100,000	[1]120,000	[4]27,000
Mobil Oil Corp.—Paulsboro[1]	100,000	[1]36,000	[2]23,500
Seaview Petroleum Inc.—Thorofare	45,000	......	......
Total	**415,000**	**251,000**	**88,500**
Solvent extraction: [1]9,500 b/sd.			

NEW MEXICO

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Bloomfield Refining Co.—Bloomfield	16,800	[1]5,400	[2]2,800
Giant Industries Inc.—Gallup	18,000	[1]7,300	[2]6,000
Navajo Refining Co.—Artesia	NR	[1]14,500	[1]1,800 [2]6,000
Total	**72,800**	**27,200**	**16,600**

NORTH DAKOTA

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Amoco Oil Co.—Mandan	58,000	[1]26,000	[4]11,000
Flying J Inc.—Williston	4,800	......	[2]2,000
Total	**62,800**	**26,000**	**13,000**

OHIO

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Ashland Petroleum Co.—Canton	66,000	[1]25,000	[6]20,000
Standard Oil Co. of Ohio—Lima	NR	[1]36,000	[4]53,000
Toledo	NR	55,000	[3]23,000 [4]19,000
Sun CI-Toledo[1]	118,000	[1]55,000	[2]41,000
Total	**475,650**	**171,000**	**156,000**

Solvent extraction: [1]11,000 b/sd.

OKLAHOMA

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Barrett Refining Corp.—Thomas	13,000	......	......
Conoco Inc.—Ponca City	134,000	[1]45,000	[2]33,500
Kerr-McGee Refining Corp.—Wynnewood[1]	43,000	[1]20,000	[2]8,500
Sinclair Oil Corp.—Tulsa	50,000	[1]18,000	[2]20,000
Sun CI—Tulsa[2]	85,000	[1]28,000	[2]23,000
Total Petroleum Inc.—Ardmore	62,000	[1]22,500	[6]12,000
Total	**387,000**	**133,500**	**97,000**

Solvent extraction: [1]5,000 b/sd. [2]5,900 b/sd.

OREGON

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Chevron U.S.A. Inc.—Portland	**15,000**	......	......

PENNSYLVANIA

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
ARCO—Philadelphia	125,000	[1]29,000	[2]60,000
BP Oil Inc.—Marcus Hook	NR	[1]50,000	[6]48,000
Chevron U.S.A. Inc.—Philadelphia	174,100	[1]85,300	[2]34,000
Kendall-Amalie Division, Witco Chemical Co.—Bradford	9,900	......	[4]3,400
Pennzoil Products Co.—Rouseville	15,700	......	[2]5,820
Quaker State Oil Refining Corp.—Smethport[1]	6,500	......	[2]2,450
Sun CI—Marcus Hook	155,000	[1]82,000	[2]39,600
United Refining Co.—Warren	60,000	[1]20,000	[2]16,000
Total	**717,200**	**266,300**	**209,270**

Solvent extraction: [1]730 b/sd

TENNESSEE

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Mapco Petroleum Inc.—Memphis	NR	[1]30,000	10,000
Total	**57,000**	**30,000**	**10,000**

TEXAS

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Amoco Oil Co.—Texas City	400,000	[1]194,000	[4]142,000
ARCO—Houston[1]	275,000	[1]75,000	[2]108,000
Champlin Petroleum Co.—Corpus Christi[2]	155,000	[1]77,000	[5]54,000
Chevron U.S.A. Inc.—El Paso	76,000	[1]22,000	[2]25,000
Port Arthur	406,900	[1]110,000	[2]23,000 [4]44,100
Coastal States Petroleum Co.—Corpus Christi	95,000	[1]19,500	[5]20,000
Crown Central Petroleum Corp.—Houston	100,000	[1]56,000	14,000 [4]22,000
Diamond Shamrock Corp.—Sunray[3]	90,000	[1]45,000	[2]29,000
Three Rivers[4]	45,000	[1]17,000	[2]8,000
El Paso Refining CL—El Paso	21,000	[1]7,000	[2]5,600
Exxon Co. U.S.A.—Baytown[5]	493,000	[1]155,000	[4]123,000
Fina Oil & Chemical Co.—Big Spring[6]	NR	[1]22,000	[2]20,000
Port Arthur[7]	90,000	[1]34,000	[5]30,000
Hill Petroleum Co.—Houston[8]	NR	[1]50,000	[2]13,500
Howell Hydrocarbons Inc.—San Antonio	9,300	......	[3]1,200
Koch Refining Co.—Corpus Christi	125,000	[1]40,000	[1]12,000 [3]15,000
LaGloria Oil & Gas Co.—Tyler	65,000	[1]17,000	[2]3,500 [5]11,700
Liquid Energy Corp.—Bridgeport	10,000	......	......
Marathon Petroleum Co.—Texas City	69,500	[1]38,000	[1]8,000
Mobil Oil Corp.—Beaumont	270,000	[1]102,000	[2]103,000
Phillips 66 Co.—Borger	105,000	[1]60,000	[2]26,000
Sweeny	175,000	[1]87,000	[2]36,000
Pride Refining Inc.—Abilene	42,750	......	......
Shell Oil Co.—Deer Park	214,000	[1]65,000	[2]20,000 [3]44,000
Odessa	28,600	[1]11,500	[1]11,000
Southwestern Refining CI—Corpus Christi	104,000	[1]50,000	[2]30,000
Texaco Refining & Marketing Inc.—Port Arthur and Port Neches	250,000	[1]110,000	[5]40,000
Texas City Refining Inc.—Texas City	119,6[illegible]	[1]43,500	[1]11,000 [5]12,000
Unocal Corp.—(Beaumnont), Nederland	120,000	[1]39,000	[3]12,000 [4]20,000
Valero Refining Co.—Corpus Christi	NR	†53,000	......
Total	**4,098,700**	**1,605,500**	**1,097,600**

Solvent extraction: [1]10,200 b/sd. [2]12,000 b/sd. [3]15,000 b/sd. [4]7,000 b/sd. [5]53,000 b/sd. [6]10,000 b/sd. [7]18,000 b/sd. [8]10,000 b/sd.

UTAH

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Amoco Oil Co.—Salt Lake City	40,000	[1]18,000	[4]6,000
Big West Oil Co.—Salt Lake City	24,000	[2]5,400	[2]5,000
Chevron U.S.A.—Salt Lake City	45,000	[1]11,000 [2]7,000	[2]5,500
Crysen Refining Inc.—Woods Cross	12,500	......	[2]3,000
Phillips 66 Co.—Woods Cross[1]	25,000	[2]8,400	[2]6,000
Seagull Refining Co.—Roosevelt	8,000	[1]6,000	[2]3,000
Total	**154,500**	**55,800**	**28,500**

Solvent extraction: [1]5,000 b/sd.

VIRGINIA

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Amoco Oil Co.—Yorktown	51,000	[1]27,500	[2]8,750
Total	**51,000**	**27,500**	**8,750**

WASHINGTON

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
ARCO—Ferndale	163,000	......	[2]50,000
Chevron U.S.A. Inc.—Seattle	5,500	......	......
Mobil Oil Corp.—Ferndale	77,000	[2]25,500	[4]11,800
Shell Oil Co.—Anacortes	77,000	[1]39,000	[3]22,000
Sound Refining Inc.—Tacoma	11,900	......	......
Texaco Refining & Marketing Inc.—Anacortes[1]	78,000	[1]35,000	[2]21,000
U.S. Oil & Refining Co.—Tacoma	NR	......	[2]6,000
Total	**444,225**	**99,500**	**110,800**

Solvent extraction: [1]5,000 b/sd.

WEST VIRGINIA

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Quaker State Oil Refining Corp.—Newell	10,500	......	[2]3,400
St. Mary's[1]	4,700	......	[2]1,500
Total	**15,200**	......	**4,900**

Solvent extraction: [1]800 b/sd.

WISCONSIN

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Murphy Oil USA Inc.—Superior	**32,000**	**[1]9,700**	**[2]8,000**

WYOMING

Company and refinery location	Crude	Catalytic cracking	Catalytic reforming
Amoco Oil Co.—Casper	40,000	[1]13,500	[4]6,000
Frontier Oil & Refining Co.—Cheyenne	35,000	[1]12,000	[2]7,000
Little America Refining Co.—Casper	24,500	[1]12,500	[2]6,100
Mountaineer Refining CI—LaBarge	300	......	......
Sinclair Oil Corp.—Sinclair	53,000	[1]21,000	[1]10,000
Wyoming Refining Co.—Newcastle	12,500	[2]4,000	[1]2,750
Total	**185,300**	**83,000**	**31,850**

REFINING

Refinery throughputs

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
	(Thousand barrels daily)										
U.S.	12,475	13,435	14,625	14,780	14,465	13,520	12,470	11,775	11,685	12,045	12,025
Canada	1,700	1,710	1,805	1,820	1,960	2,085	1,945	1,650	1,545	1,570	1,450
Latin America	5,515	5,670	5,715	5,975	6,220	6,460	6,575	6,080	5,825	5,825	5,795
Western Europe	12,415	13,625	13,550	13,505	14,160	12,925	11,890	11,480	11,270	11,505	11,240
Middle East	2,075	2,300	2,240	2,535	2,365	2,445	2,205	2,245	2,515	2,665	2,795
Africa	1,005	1,055	1,165	1,280	1,355	1,460	1,525	1,735	1,920	1,975	2,015
Japan	4,055	4,230	4,285	4,240	4,340	4,015	3,630	3,360	3,255	3,355	3,120
Southeast Asia	1,545	1,865	2,030	2,330	2,450	2,370	2,480	2,335	2,380	2,270	2,265
South Asia	485	550	605	645	675	705	795	840	880	885	1,010
Australasia	635	655	680	690	700	640	655	625	605	615	585
Total Non-Communist	**41,905**	**45,095**	**46,700**	**47,800**	**48,690**	**46,625**	**44,170**	**42,125**	**41,880**	**42,710**	**42,300**
Communist	11,025	11,575	11,930	12,875	13,230	13,320	13,420	13,575	13,675	13,885	14,165
Total World	**52,930**	**56,670**	**58,630**	**60,675**	**61,920**	**59,945**	**57,590**	**55,700**	**55,555**	**56,595**	**56,465**

Source: British Petroleum

Historical reserve data (billion bbl oil)

	1960	1965	1970	1975	1980	1985	1986	1987
Asia-Pacific								
Australia	—	—	2.0	1.7	2.4	1.4	1.4	1.7
Brunei	—	—	1.0	2.0	1.7	1.4	1.5	1.4
India	—	—	—	—	2.5	3.5	3.7	4.2
Indonesia	9.5	9.5	10.0	14.0	9.5	8.6	8.5	8.3
Malaysia	—	—	—	2.5	3.0	3.0	3.1	2.8
Europe								
Norway	—	—	1.0	7.0	5.5	8.3	10.9	10.5
United Kingdom	—	—	1.0	16.0	14.8	13.6	13.0	9.0
Middle East								
Abu Dhabi	—	10.0	11.8	29.5	29.0	30.5	31.0	31.0
Divided Zone	6.0	12.4	25.7	6.4	6.0	5.4	5.4	5.2
Dubai	—	—	—	1.0	1.4	1.4	1.4	1.4
Iran	35.0	40.0	70.0	64.5	57.5	48.5	47.9	48.8
Iraq	27.0	25.0	32.0	34.3	30.0	44.5	44.1	47.1
Kuwait	62.0	62.0	67.1	68.0	64.9	90.0	90.0	91.9
Oman	—	—	—	5.0	2.3	3.5	4.0	4.0
Qatar	2.5	3.0	3.5	5.8	3.6	3.4	3.3	3.1
Saudi Arabia	50.0	60.0	128.5	148.6	165.0	169.0	168.8	166.6
Syria	1.0	1.0	1.0	1.0	1.3	1.4	1.4	1.4
Africa								
Algeria	5.2	7.4	7.0	7.4	8.2	9.0	8.8	8.8
Angola-Cabinda	—	—	—	1.3	1.2	1.8	2.0	1.1
Egypt	—	2.0	4.5	3.9	2.9	3.2	3.8	3.6
Gabon	—	—	—	—	—	—	—	1.1
Libya	2.0	10.0	29.2	26.0	23.0	21.1	21.3	21.3
Nigeria	—	3.0	9.3	20.2	16.7	16.7	16.6	16.0
Tunisia	—	—	—	1.0	1.7	1.5	1.8	1.8
Western Hemisphere								
Argentina	2.2	1.9	4.5	2.5	2.5	2.3	2.3	2.3
Brazil	—	—	—	—	1.3	1.9	2.0	2.3
Canada	—	7.5	10.7	7.1	6.4	7.1	6.5	6.8
Colombia	—	1.5	1.7	1.7	1.0	0.624	1.2	1.3
Ecuador	—	—	—	2.5	1.1	1.4	1.6	1.7
Mexico	2.3	2.5	3.2	9.5	44.0	48.6	49.3	54.6
Venezuela	18.5	17.3	14.0	17.7	17.9	25.8	25.6	25.0
U.S.A.	33.5	35.4	37.0	33.0	26.4	27.3	28.0	24.6
Total Non-Communist	**268.5**	**319.6**	**511.4**	**555.7**	**562.2**	**614.6**	**618.8**	**618.2**
U.S.S.R.	33.5	33.5	77.0	80.4	63.0	63.0	61.0	59.0
China	—	—	—	—	—	19.1	18.4	18.4
Other	—	—	—	—	—	—	—	1.8
Total World	**302.0**	**353.1**	**611.4**	**658.7**	**648.5**	**698.7**	**700.1**	**699.2**

Worldwide production statistics

NORTH AMERICA

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1965	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986
Canada	23.5 1.2	79.6 4.0	525.6 26.2	801.4 39.9	1,263.6 62.9	1,324.0 65.9	1,496.0 74.5	1,412.0 70.3	1,287.0 64.1	1,233.0 61.4	1,396.0 69.5	1,430.0 71.2	1,453.0 72.4	1,475.3 73.5
United States	**3,707.4** **184.6**	**5,407.1** **269.3**	**7,054.6** **351.3**	**7,804.1** **388.6**	**9,630.0** **479.6**	**8,701.0** **433.3**	**8,544.0** **425.5**	**8,569.0** **426.7**	**8,588.0** **427.7**	**8,655.0** **431.0**	**8,669.0** **431.7**	**8,750.0** **435.8**	**8,919.0** **444.2**	**8,790.0** **437.7**
Total	**3,730.9** **185.8**	**5,486.7** **273.3**	**7,580.2** **377.5**	**8,605.5** **428.5**	**10,893.6** **542.5**	**10,025.0** **499.2**	**10,040.0** **500.0**	**9,981.0** **497.0**	**9,875.0** **491.8**	**9,888.0** **492.4**	**10,065.0** **501.2**	**10,180.0** **507.0**	**10,372.0** **516.6**	**10,265.3** **511.2**

MIDDLE EAST

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1965	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986
Abu Dhabi	... ...	... ...	... ...	281.9 14.0	693.8 34.6	1,450.0 72.2	1,464.0 72.9	1,350.0 67.2	1,145.0 57.0	883.0 44.0	757.0 37.7	750.0 37.4	705.1 35.1	949.0 47.3
Bahrain	**19.3** **1.0**	**30.2** **1.5**	**45.1** **2.2**	**57.0** **2.8**	**76.6** **3.8**	**56.0** **2.8**	**51.0** **2.5**	**48.0** **2.4**	**44.0** **2.2**	**45.0** **2.2**	**41.0** **2.0**	**41.0** **2.0**	**41.9** **2.1**	**44.0** **2.2**
Dubai	... ...	... ...	... ...	... ...	... ...	360.0 17.9	354.0 17.6	349.0 17.4	358.0 17.8	357.0 17.8	327.0 16.3	324.0 16.1	348.0 17.3	350.0 17.4
Iran	**181.2** **9.0**	**664.3** **33.1**	**1,067.6** **53.2**	**1,885.5** **93.9**	**3,328.8** **165.8**	**5,241.7** **261.0**	**3,101.0** **154.4**	**1,467.0** **73.1**	**1,375.0** **68.5**	**1,896.0** **94.4**	**2,606.0** **129.8**	**2,166.0** **107.9**	**2,279.0** **113.5**	**1,806.3** **90.0**
Iraq	60.7 3.0	136.2 6.8	1,004.2 50.0	1,315.2 65.5	1,548.6 77.1	2,562.0 127.6	3,434.0 171.0	2,638.0 131.4	892.0 44.4	914.0 45.5	905.0 45.1	1,218.0 60.7	1,396.8 69.6	1,787.7 89.0
Israel	... ...	... ...	**2.5** **0.1**	**4.0** **0.2**	**70.2** **3.5**	**10.0** **0.5**	**31.0** **1.5**	**1.0** ...	**0.3** ...	**0.3** ...	**0.2** ...	**0.1** ...	**0.1** ...	**0.1** ...
Kuwait	... ...	344.4 17.2	1,628.2 81.1	2,169.5 108.0	2,734.5 136.2	1,865.0 92.9	2,213.0 110.2	1,382.0 68.8	916.0 45.6	675.0 33.6	912.0 45.4	925.0 46.1	823.3 41.0	1,202.0 59.9
Neutral Zone	... ...	... ...	**136.2** **6.8**	**360.9** **18.0**	**500.6** **24.9**	**466.0** **23.2**	**567.0** **28.2**	**540.0** **26.9**	**370.0** **18.4**	**315.0** **15.7**	**398.0** **19.8**	**420.0** **20.9**	**357.8** **17.8**	**325.7** **16.2**
Oman	... ...	... ...	... ...	... ...	332.4 16.6	320.0 15.9	295.0 14.7	283.0 14.1	317.0 15.8	328.0 16.3	378.0 18.8	404.0 20.1	484.3 24.1	540.8 26.9
Qatar	... ...	**33.6** **1.7**	**175.1** **8.7**	**231.1** **11.5**	**362.4** **18.0**	**486.7** **24.2**	**504.0** **25.1**	**472.0** **23.5**	**414.0** **20.6**	**340.0** **16.9**	**270.0** **13.4**	**395.0** **19.7**	**297.0** **14.8**	**332.3** **16.5**
Ras Al Khaimah	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	5.8 0.3	9.1 0.5	11.0 0.5
Saudi Arabia	**13.9** **0.7**	**546.7** **27.2**	**1,247.1** **62.1**	**2,024.9** **100.8**	**3,548.9** **176.7**	**8,059.0** **401.3**	**9,251.0** **460.7**	**9,630.0** **479.6**	**9,642.0** **480.2**	**6,484.0** **322.9**	**4,872.0** **242.6**	**4,545.0** **226.3**	**3,295.3** **164.1**	**4,719.7** **235.0**
Sharjah	... ...	... ...	... ...	... ...	... ...	24.0 1.2	13.0 0.6	10.0 0.5	9.0 0.4	7.0 0.3	35.0 1.7	62.0 3.1	66.1 3.3	65.0 3.2
Syria	... ...	... ...	... ...	... ...	**83.1** **4.1**	**170.0** **8.5**	**163.0** **8.1**	**165.0** **8.2**	**166.0** **8.3**	**175.0** **8.7**	**165.0** **8.2**	**161.0** **8.0**	**161.7** **8.1**	**185.0** **9.2**
Turkey		0.3 ...	7.0 0.3	29.7 1.5	67.9 3.4	50.0 2.5	56.0 2.8	44.0 2.2	46.0 2.3	45.0 2.2	45.0 2.2	41.0 2.0	41.5 2.1	46.8 2.3
Yemen, North	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	**10.0** **0.5**
Total	**275.1** **13.7**	**1,755.7** **87.5**	**5,313.0** **264.5**	**8,359.7** **416.2**	**13,347.8** **664.7**	**21,120.4** **1,051.7**	**21,497.0** **1,070.3**	**18,379.0** **915.3**	**15,694.3** **781.5**	**12,464.3** **620.5**	**11,711.2** **583.0**	**11,457.9** **570.6**	**10,307.0** **513.4**	**12,375.4** **616.1**

*Totals may not add due to rounding

AFRICA

Upper figures = 1 000 b/d
Lower figures = million t/y

	1940	1950	1960	1965	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986
Algeria	... ...	... ...	182.7 9.1	551.6 27.5	1,029.1 51.2	1,161.2 57.8	1,175.0 58.5	1,016.0 50.6	750.0 37.4	750.0 37.4	686.6 34.2	608.0 30.3	643.3 32.0	600.7 29.9
Angola (inc. Cabinda)	... ...	... ...	1.3 0.1	13.0 0.6	13.7 0.7	130.0 6.5	147.0 7.3	150.0 7.5	140.0 7.0	122.0 6.1	174.0 8.7	207.0 10.3	228.5 11.4	280.7 14.0
Cameroon	... ...	... ...	... ...	... ...	... ...	10.0 0.5	34.0 1.7	58.0 2.9	87.0 4.3	109.0 5.4	114.0 5.7	125.0 6.2	133.5 6.6	180.0 9.0
Congo	... ...	... ...	... ...	... ...	... ...	28.0 1.4	57.0 2.8	56.0 2.8	79.0 3.9	87.0 4.3	95.0 4.7	118.0 5.9	115.1 5.7	115.0 5.7
Egypt	18.1 0.9	44.9 2.2	61.6 3.1	122.7 6.1	327.3 16.3	464.0 23.1	526.0 26.2	596.0 29.7	578.0 28.8	667.0 33.2	690.0 34.4	790.0 39.3	885.8 44.1	773.7 38.5
Gabon	... ...	... ...	16.1 0.8	25.2 1.3	108.8 5.4	208.7 10.4	204.0 10.2	180.0 9.0	147.0 7.3	130.0 6.5	150.0 7.5	150.0 7.5	150.0 7.5	146.2 7.3
Ivory Coast	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	7.0 0.3	9.0 0.4	24.0 1.2	22.0 1.1	28.0 1.4	20.0 1.0
Libya	... ...	... ...	... ...	1,220.0 60.8	3,318.0 165.2	1,982.5 98.7	2,066.0 102.9	1,785.0 88.9	1,063.0 52.9	1,127.0 56.1	1,020.0 50.8	1,090.0 54.3	1,045.3 52.1	1,030.7 51.3
Nigeria	... ...	... ...	17.3 0.9	272.2 13.6	1,083.3 53.9	1,897.0 94.5	2,303.0 114.7	2,057.0 102.4	1,369.0 68.2	1,324.0 65.9	1,232.0 61.4	1,414.0 70.4	1,445.5 72.0	1,464.0 72.9
Tunisia	... ...	... ...	3.0 0.1	3.6 0.2	87.7 4.4	100.0 5.0	100.0 5.0	110.0 5.5	118.0 5.9	106.0 5.3	115.0 5.7	114.0 5.7	125.0 6.2	106.0 5.3
Zaire	... ...	... ...	... ...	... ...	... ...	20.0 1.0	21.0 1.0	20.0 1.0	20.0 1.0	22.0 1.1	26.0 1.3	27.0 1.3	30.5 1.5	32.1 1.6
Others	... ...	0.8 ...	3.0 0.1	3.6 0.2	1.5 0.1	0.1 ...	5.0 0.2	4.0 0.2	2.2 0.1	1.7 0.1	6.6 0.3	7.7 0.4	8.9 0.4	7.6 0.4
Total	18.1 0.9	45.7 2.2	285.0 14.2	2,211.9 110.3	5,969.4 297.2	6,001.5 298.9	6,638.0 330.5	6,032.0 300.5	4,360.2 217.1	4,454.7 221.8	4,333.2 215.9	4,672.7 232.7	4,839.4 240.9	4,756.7 236.9

EUROPE

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1965	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986
Austria	7.7 0.4	27.9 1.4	45.4 2.3	53.1 2.6	53.3 2.7	35.0 1.7	35.0 1.7	29.0 1.4	25.0 1.2	25.0 1.2	24.0 1.2	23.0 1.1	21.7 1.1	22.2 1.1
Denmark	... ...	... ...	... ...	... ...	... ...	10.0 0.5	8.0 0.4	6.0 0.3	16.0 0.8	38.0 1.9	46.0 2.3	45.0 2.2	58.0 2.9	74.7 3.7
France	1.4 0.1	2.5 0.1	38.6 1.9	59.5 3.0	45.8 2.3	21.0 1.0	20.0 1.0	26.0 1.3	34.0 1.7	33.0 1.6	32.0 1.6	35.0 1.7	49.0 2.4	59.0 2.9
Germany, Fed. Rep.	20.1 1.0	22.2 1.1	107.3 5.3	155.0 7.7	147.2 7.3	102.0 5.1	94.0 4.7	90.0 4.5	86.0 4.3	84.0 4.2	81.0 4.0	79.0 3.9	80.5 4.0	80.0 4.0
Greece	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	8.0 0.4	21.0 1.0	25.0 1.2	27.0 1.3	26.4 1.3	26.4 1.3
Italy	0.2 ...	0.2 ...	37.5 1.9	47.0 2.3	26.3 1.3	28.0 1.4	30.0 1.5	39.0 1.9	37.0 1.8	28.0 1.4	37.0 1.8	45.0 2.2	41.7 2.1	49.0 2.4
Netherlands	...	13.4 0.7	36.0 1.8	37.0 1.8	35.8 1.8	36.0 1.8	25.0 1.2	25.0 1.2	27.0 1.3	28.0 1.4	42.0 2.1	61.0 3.0	69.0 3.4	79.0 3.9
Norway	... ...	... ...	... ...	... ...	... ...	350.0 17.4	403.0 20.1	528.0 26.3	508.0 25.3	488.0 24.3	600.0 29.9	688.0 34.3	771.0 38.4	823.3 41.0
Spain					3.1 0.2	19.6 1.0	23.2 1.2	32.0 1.6	24.0 1.2	30.0 1.5	59.0 2.9	45.0 2.2	45.3 2.3	37.2 1.9
United Kingdom	0.3 ...	0.9 ...	1.7 0.1	1.7 0.1	1.7 0.1	1,082.0 53.9	1,568.0 78.1	1,619.0 80.6	1,790.0 89.1	2,050.0 102.1	2,260.0 112.5	2,452.0 122.1	2,519.8 125.5	2,602.0 129.6
Total	29.7 1.5	67.1 3.3	266.5 13.3	353.3 17.5	313.2 15.7	1,683.6 83.8	2,206.2 109.9	2,394.0 119.1	2,555.0 127.1	2,825.0 140.6	3,206.0 159.5	3,500.0 174.0	3,682.4 183.4	3,852.8 191.8

ASIA-PACIFIC

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1965	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986
Afghanistan	... ...	... ...	... ...	... ...	... ...	0.2 ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...
Australia	... ...	... ...	... ...	7.2 0.4	175.6 8.7	430.0 21.4	441.0 22.0	379.0 18.9	382.0 19.0	353.0 17.6	405.0 20.2	481.0 24.0	556.0 27.7	472.0 23.5
Brunei	19.3 1.0	84.8 4.2	92.9 4.6	80.4 4.0	148.0 7.4	210.0 10.5	256.0 12.7	230.0 11.5	166.0 8.3	155.0 7.7	155.0 7.7	160.0 8.0	149.5 7.4	170.0 8.5
Burma	21.1 1.1	1.5 0.1	11.1 0.6	12.1 0.6	16.4 0.8	25.0 1.2	30.0 1.5	30.0 1.5	30.0 1.5	30.0 1.5	30.0 1.5	30.0 1.5	30.0 1.5	30.0 1.5
India	3.9 0.2	6.1 0.3	9.0 0.4	61.8 3.1	138.6 6.9	230.0 11.5	245.0 12.2	182.0 9.1	298.0 14.8	384.0 19.1	390.0 19.4	543.0 27.0	614.0 30.6	622.7 31.0
Indonesia	169.4 8.4	132.6 6.6	411.2 20.5	485.0 24.2	853.6 42.5	1,635.2 81.4	1,595.0 79.4	1,576.0 78.5	1,607.0 80.0	1,341.0 66.8	1,292.0 64.3	1,332.0 66.3	1,219.5 60.7	1,243.8 61.9
Japan	7.2 0.4	5.6 0.3	10.2 0.5	11.4 0.6	16.3 0.8	10.0 0.5	8.0 0.4	10.0 0.5	7.0 0.3	6.0 0.3	6.9 0.3	6.4 0.3	10.0 0.5	12.8 0.6
Malaysia	... ...	... ...	... ...	... ...	... ...	210.0 10.5	259.0 12.9	288.0 14.3	259.0 12.9	306.0 15.2	370.0 18.4	462.0 23.0	432.8 21.6	503.3 25.1
New Guinea	... ...	4.8 0.2	4.2 0.2	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	...
New Zealand	... ...	... ...	... ...	... ...	... ...	13.0 0.6	9.0 0.4	7.0 0.3	10.0 0.5	15.0 0.7	15.0 0.7	18.0 0.9	18.0 0.9	29.3 1.5
Pakistan	2.4 0.1	3.5 0.2	7.2 0.4	11.2 0.6	9.9 0.5	9.3 0.5	10.0 0.5	10.0 0.5	10.0 0.5	12.0 0.6	13.0 0.6	18.0 0.9	34.3 1.7	41.0 2.0
Philippines	... ...	... ...	... ...	... ...	... ...	... ...	26.0 1.3	15.0 0.7	2.0 0.1	7.0 0.3	15.0 0.7	12.0 0.6	9.3 0.5	6.3 0.3
Taiwan	... ...	... ...	0.4 ...	0.4 ...	1.8 0.1	4.3 0.2	5.0 0.2	5.0 0.2	3.0 0.1	3.0 0.1	2.3 0.1	2.6 0.1	2.7 0.1	1.9 0.1
Thailand	... ...	... ...	... ...	... ...	0.4 ...	0.2 ...	... ...	... ...	... ...	6.0 0.3	11.0 0.5	19.0 0.9	34.3 1.7	35.6 1.8
Total	223.3 11.2	237.9 11.9	546.2 27.2	669.5 33.5	1,360.6 67.7	2,777.2 138.3	2,884.0 143.5	2,732.0 136.0	2,774.0 138.0	2,618.0 130.2	2,705.2 134.4	3,084.0 153.5	3,110.4 154.9	3,168.7 157.8

LATIN AMERICA

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1965	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986
Argentina	56.3 2.8	64.0 3.2	171.9 8.6	269.3 13.4	382.9 19.1	453.0 22.6	467.0 23.3	487.0 24.3	497.0 24.8	483.0 24.1	481.0 24.0	467.0 23.3	447.5 22.3	430.2 21.4
Bolivia	**0.8** ...	**1.7** **0.1**	**9.8** **0.5**	**9.2** **0.5**	**16.3** **0.8**	**30.0** **1.5**	**30.0** **1.5**	**30.0** **1.5**	**24.0** **1.2**	**24.0** **1.2**	**22.0** **1.1**	**20.0** **1.0**	**20.0** **1.0**	**18.7** **0.9**
Brazil	... ...	0.9 ...	80.9 4.0	94.0 4.7	160.5 8.0	160.0 8.0	161.0 8.0	182.0 9.1	215.0 10.7	252.0 12.5	315.0 15.7	437.0 21.8	540.5 26.9	578.0 28.8
Chile	... ...	**1.7** **0.1**	**19.8** **1.0**	**34.9** **1.7**	**34.6** **1.7**	**20.7** **1.0**	**23.0** **1.1**	**29.0** **1.4**	**40.0** **2.0**	**41.0** **2.0**	**39.0** **1.9**	**38.0** **1.9**	**32.5** **1.6**	**34.4** **1.7**
Colombia	69.9 3.5	93.3 4.6	152.7 7.6	210.0 10.5	214.0 10.7	130.0 6.5	124.0 6.2	125.0 6.2	125.0 6.2	140.0 7.0	155.0 7.7	165.0 8.2	178.8 8.9	324.2 16.1
Ecuador	**6.4** **0.3**	**7.2** **0.4**	**7.7** **0.4**	**8.0** **0.4**	**4.1** **0.2**	**201.8** **10.0**	**225.0** **11.2**	**222.0** **11.1**	**204.0** **10.2**	**215.0** **10.7**	**236.0** **11.8**	**254.0** **12.6**	**273.3** **13.6**	**270.1** **13.5**
Guatemala	... ...	... ...	... ...	... ...	... ...	... ...	2.0 0.1	5.0 0.2	5.0 0.2	6.4 0.3	7.5 0.4	5.2 0.3	3.1 0.2	4.9 0.2
Mexico	**120.3** **6.0**	**198.5** **9.9**	**270.6** **13.5**	**323.1** **16.1**	**430.2** **21.4**	**1,207.0** **60.1**	**1,461.0** **72.8**	**1,936.0** **96.4**	**2,390.0** **119.0**	**2,734.0** **136.2**	**2,702.0** **134.6**	**2,743.0** **136.6**	**2,797.0** **139.3**	**2,468.0** **122.9**
Peru	33.2 1.7	41.1 2.0	52.6 2.6	63.2 3.1	72.2 3.6	150.0 7.5	195.0 9.7	191.0 9.5	184.0 9.2	198.0 9.9	171.0 8.5	201.0 10.0	189.0 9.4	179.0 8.9
Trinidad & Tobogo	**60.9** **3.0**	**56.5** **2.8**	**115.7** **5.8**	**133.9** **6.7**	**139.8** **7.0**	**240.0** **12.0**	**215.0** **10.7**	**211.0** **10.5**	**240.0** **12.0**	**182.0** **9.1**	**158.0** **7.9**	**169.0** **8.4**	**179.0** **8.9**	**167.9** **8.4**
Venezuela	507.0 25.2	1,498.0 74.6	2,846.1 141.7	3,472.9 173.0	3,708.0 184.7	2,165.5 107.8	2,356.0 117.3	2,167.0 107.9	2,093.0 104.2	1,826.0 90.9	1,791.0 89.2	1,724.0 85.9	1,669.0 83.1	1,664.9 82.9
Others	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	**0.7** ...	**0.6** ...	**0.5** ...	**2.2** **0.1**	**2.9** **0.1**	**3.6** **0.2**
Total	**854.8** **42.5**	**1,962.9** **97.7**	**3,727.8** **185.7**	**4,618.5** **230.1**	**5,162.6** **257.2**	**4,758.0** **237.0**	**5,259.0** **261.9**	**5,585.0** **278.1**	**6,017.7** **299.7**	**6,102.0** **303.9**	**6,078.0** **302.8**	**6,225.4** **310.1**	**6,332.6** **315.3**	**6,143.9** **305.9**
Total non-Communist	**5,131.9** **255.6**	**9,556.0** **475.8**	**17,718.7** **882.4**	**24,818.4** **1,236.1**	**37,047.7** **1,845.0**	**46,365.7** **2,308.9**	**48,524.2** **2,416.1**	**45,103.0** **2,246.0**	**41,276.2** **2,055.2**	**38,352.0** **1,909.4**	**38,098.6** **1,896.8**	**39,120.0** **1,947.9**	**38,643.8** **1,924.5**	**40,562.8** **2,019.7**

COMMUNIST AREAS

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1965	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986
Bulgaria	... ...	... ...	4.0 0.2	4.6 0.2	6.7 0.3	5.1 0.3	5.3 0.3	6.0 0.3	6.0 0.3	3.0 0.1	3.0 0.1	3.0 0.1	3.0 0.1	3.0 0.1
China	... ...	**4.0** **0.2**	**100.0** **5.0**	**220.0** **11.0**	**500.0** **24.9**	**2,090.4** **104.1**	**2,130.5** **106.1**	**2,119.0** **105.5**	**2,024.4** **100.8**	**2,042.0** **101.7**	**2,120.0** **105.6**	**2,250.0** **112.1**	**2,496.0** **124.3**	**2,620.0** **130.5**
Czechoslovakia	... ...	0.8 ...	2.7 0.1	3.9 0.2	4.1 0.2	2.3 0.1	2.2 0.1	1.9 0.1	1.7 0.1	2.0 0.1	2.0 0.1	2.0 0.1	2.0 0.1	2.0 0.1
German Dem. Rep.*	... ...	**1.0** ...	**1.0** ...	**1.0** ...	**1.2** **0.1**	**10.0** **0.5**	**10.0** **0.5**	**10.0** **0.5**	**10.0** **0.5**	**10.0** **0.5**	**10.0** **0.5**	**10.0** **0.5**	**10.0** **0.5**	**10.0** **0.5**
Hungary	... ...	10.1 0.5	24.3 1.2	36.1 1.8	38.7 1.9	44.1 2.2	40.7 2.0	40.6 2.0	40.5 2.0	41.0 2.0	40.0 2.0	40.0 2.0	40.0 2.0	40.0 2.0
Poland	... ...	**3.3** **0.2**	**3.9** **0.2**	**6.8** **0.3**	**8.5** **0.4**	**7.3** **0.4**	**6.6** **0.3**	**6.6** **0.3**	**6.0** **0.3**	**4.0** **0.2**	**5.0** **0.2**	**5.0** **0.2**	**5.0** **0.2**	**4.0** **0.2**
Romania	... ...	87.7 4.4	231.0 11.5	252.4 12.6	268.6 13.4	275.6 13.7	247.0 12.3	230.9 11.5	232.0 11.6	234.0 11.7	240.0 12.0	229.0 11.4	226.0 11.3	220.0 11.0
U.S.S.R.*	**624.9** **31.1**	**760.6** **37.9**	**2,969.1** **147.9**	**4,877.3** **242.9**	**7,089.2** **353.0**	**11,476.6** **571.5**	**11,758.5** **585.6**	**12,031.0** **599.1**	**12,180.0** **606.6**	**12,260.0** **610.5**	**12,320.0** **613.5**	**12,260.0** **610.5**	**11,900.0** **592.6**	**12,300.0** **612.5**
Yugoslavia	0.3 ...	2.1 0.1	18.8 0.9	40.7 2.0	57.8 2.9	82.0 4.1	70.0 3.5	84.5 4.2	87.6 4.4	87.0 4.3	82.0 4.1	80.0 4.0	81.0 4.0	83.0 4.1
Others	... ...	**2.7** **0.1**	**14.9** **0.7**	**19.0** **0.9**	**37.1** **1.8**	**50.0** **2.5**	**50.0** **2.5**	**50.0** **2.5**	**57.2** **2.8**	**81.0** **4.0**	**86.0** **4.3**	**96.0** **4.8**	**86.0** **4.3**	**77.0** **3.8**
Total	**625.2** **31.1**	**872.3** **43.4**	**3,369.7** **167.7**	**5,461.8** **271.9**	**8,011.9** **398.9**	**14,043.4** **699.4**	**14,320.8** **713.2**	**14,580.0** **726.0**	**14,645.4** **729.4**	**14,764.0** **735.1**	**14,908.0** **742.4**	**14,975.0** **745.7**	**14,849.0** **739.4**	**15,359.0** **764.8**
*Includes gas liquids														
World Total	**5,757.1** **286.7**	**10,428.3** **519.3**	**21,088.4** **1,050.1**	**30,280.2** **1,508.0**	**45,059.1** **2,243.9**	**60,409.1** **3,008.3**	**62,845.0** **3,129.3**	**59,683.5** **2,972.0**	**55,921.8** **2,784.6**	**53,116.0** **2,644.5**	**53,006.6** **2,639.2**	**54,095.0** **2,693.6**	**53,492.8** **2,663.9**	**55,921.8** **2,784.5**

World oil consumption

Upper figures = 1,000 b/d
Lower figures = million t/y

	1983	1984	1985
U.S.A.	14,745 704.9	15,175 726.8	15,170 724.1
Canada	**1,475 68.2**	**1,425 66.7**	**1,470 67.7**
Total North America	16,220 773.1	16,600 793.5	16,640 791.8
Latin America	**4,450 211.0**	**4,420 210.0**	**4,430 209.5**
Total Western Hemisphere	**20,670 984.1**	**21,020 1,003.5**	**21,070 1,001.3**
Austria	**205 10.1**	**200 9.8**	**200 9.8**
Belgium & Luxembourg	435 21.1	420 20.4	420 20.2
Denmark	**215 10.4**	**210 10.4**	**220 10.8**
Finland	2[illegible]5 10.5	215 10.6	220 10.8
France	**1,860 89.4**	**1,815 85.9**	**1,785 83.9**
Germany, Fed. Rep.	2,340 110.8	2,330 110.6	2,410 114.0
Greece	**230 11.4**	**235 11.7**	**245 12.0**
Ireland	85 4.2	85 4.1	80 3.8
Italy	**1,820 89.2**	**1,735 84.9**	**1,745 85.0**
Netherlands	625 29.1	625 28.7	640 29.1
Norway	**180 8.3**	**190 8.6**	**190 8.8**
Portugal	195 9.5	195 9.5	170 8.2
Spain	**1,010 47.8**	**955 44.8**	**945 44.0**
Sweden	375 18.2	345 16.8	350 16.9
Switzerland	260 12.3	250 11.8	260 12.3
Turkey	**330 16.2**	**370 17.0**	**390 18.9**
United Kingdom	1,530 72.5	1,850 89.6	1,635 77.8
Other	**40 2.1**	**45 2.2**	**45 2.3**
Total Western Europe	11,970 573.1	12,070 577.4	11.950 568.6
Middle East	**1,915 96.0**	**1,980 99.0**	**1,980 98.8**
Africa	1,620 78.3	1,665 80.5	1,715 82.8
South Asia	**950 46.4**	**1,030 50.4**	**1,095 53.4**
Southeast Asia	2,310 114.7	2,315 114.7	2,295 112.8
Japan	**4,390 207.2**	**4,565 215.1**	**4,320 201.3**
Australasia	670 31.1	695 32.4	670 30.8
U.S.S.R.	**9,035 446.6**	**8,895 440.7**	**9,060 447.7**
Eastern Europe	2,490 121.5	2,495 121.8	2,550 124.3
China	**1,705 84.7**	**1,750 87.5**	**1,760 87.6**
Total Eastern Hemisphere	**37,055 1,799.6**	**37,460 1,819.5**	**37,395 1,808.1**
World excl. U.S.S.R. China & E. Europe	**44,495 2,130.9**	**45,340 2,173.0**	**45,095 2,149.8**
World Total	**57,725 2,783.7**	**58,480 2,823.0**	**58,465 2,809.4**

Source: British Petroleum
South Asia—Afghanistan, Bangladesh, Burma, India, Nepal, Pakistan, Sri Lanka Southeast Asia—Brunei, Malaysia, Indonesia, Hong Kong, South Korea, Philippines, Singapore, Thailand, Taiwan, Australasia—Australia, New Zealand, Papua New Guinea, SW Islands

Worldwide refining capacity

EUROPE

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Austria	... ...	26 1.3	47 2.3	98 4.9	280 13.9	280 13.9	280 13.9	280 13.9	244 12.2	269 13.4	268 13.3	273 13.6	204 10.2	204 10.2
Belgium	12 0.6	15 0.8	171 8.5	699 34.8	1,067 53.1	972 48.4	1,064 53.0	1,056 52.6	1,035 51.5	693 34.5	694 34.6	693 34.5	652 32.5	648 32.3
Cyprus	... ...	... ...	... ...	... ...	15 0.7	15 0.7	16 0.8	16 0.8	16 0.8	16 0.8	15 0.7	16 0.8	16 0.8	16 0.8
Denmark	1 ...	1 ...	... ...	173 8.6	220 11.0	215 10.7	214 10.7	215 10.7	215 10.7	215 10.7	174 8.7	176 8.8	166 8.3	166 8.3
Finland	... ...	... ...	25 1.2	176 8.8	336 16.7	336 16.7	336 16.7	336 16.7	299 14.9	299 14.9	299 14.9	299 14.9	241 12.0	241 12.0
France	152 7.6	306 15.2	769 38.3	2,405 119.8	3,456 172.1	3,469 172.8	3,385 168.6	3,342 166.4	3,291 163.9	2,871 143.0	2,670 133.0	2,386 118.8	1,947 97.0	1,834 91.3
Germany, Fed. Rep.	48 2.4	81 4.0	573 28.5	2,351 117.1	3,081 153.4	3,103 154.5	2,986 148.7	3,021 150.4	2,937 146.3	2,471 123.1	2,386 118.8	2,172 108.2	1,933 96.3	1,720 85.7
Greece	... ...	... ...	30 1.5	95 4.7	407 20.3	411 20.5	431 21.5	428 21.3	427 21.3	422 21.0	369 18.4	390 19.4	390 19.4	385 19.2
Ireland	11 0.5	... ...	40 2.0	54 2.7	56 2.8	56 2.8	56 2.8	56 2.8	56 2.8	56 2.8	56 2.8	56 2.8	56 2.8	56 2.8
Italy	41 2.0	107 5.3	773 38.5	3,214 160.1	4,226 210.5	4,197 209.0	4,131 205.7	4,092 203.8	4,003 199.3	3,283 163.5	3,050 151.9	3,095 154.1	2,738 136.4	2,679 133.4
Netherlands	15 0.7	77 3.8	359 17.9	1,456 72.5	1,869 93.1	1,857 92.5	1,828 91.0	1,827 91.0	1,708 85.1	1,552 77.3	1,552 77.3	1,499 74.7	1,468 73.1	1,401 69.8
Norway	1 ...	1 ...	2 0.1	113 5.6	264 13.1	264 13.1	264 13.1	253 12.6	243 12.1	243 12.1	243 12.1	244 12.2	240 12.0	240 12.0
Portugal	4 0.2	8 0.4	23 1.1	82 4.1	415 20.7	361 18.0	378 18.8	341 17.0	365 18.2	365 18.2	282 14.0	290 14.4	296 14.7	294 14.6
Spain	11 0.5	17 0.8	144 7.2	734 36.6	1,271 63.3	1,425 71.0	1,455 72.5	1,464 72.9	1,517 75.5	1,522 75.8	1,493 74.4	1,433 74.4	1,367 68.1	1,305 65.0
Sweden	4 0.2	26 1.3	48 2.4	253 12.6	424 21.1	411 20.5	458 22.8	451 22.5	471 23.5	453 22.6	453 22.6	439 21.9	429 21.4	437 21.8
Switzerland	... ...	... ...	... ...	106 5.3	137 6.8	137 6.8	137 6.8	102 5.1	137 6.8	137 6.8	137 6.8	127 6.3	137 6.8	65 3.2
United Kingdom	133 6.6	197 9.8	962 47.9	2,420 120.5	2,911 145.0	2,527 125.8	2,527 125.8	2,629 130.9	2,482 123.6	2,260 112.5	2,092 104.2	2,007 99.9	1,792 89.2	1,780 88.6
Yugoslavia	6 0.2	8 0.4	10 0.5	228 11.4	293 14.6	293 14.6	296 14.7	297 14.8	297 14.8	297 14.8	297 14.8	297 14.8	302 15.0	483 24.1
Total Europe	**438** **21.5**	**871** **43.1**	**3,976** **197.9**	**14,557** **730.1**	**20,728** **1,032.2**	**20,329** **1,012.3**	**20,242** **1,007.9**	**20,206** **1,006.2**	**19,743** **983.3**	**17,424** **867.8**	**16,530** **823.3**	**15,952** **794.5**	**14,374** **716.0**	**13,954** **695.1**

NORTH AMERICA

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Canada	203 10.1	329 16.4	1,002 49.9	1,355 67.5	2,126 105.9	2,225 110.8	2,222 110.7	2,168 107.8	2,200 109.6	2,020 100.6	1,807 90.0	1,869 93.1	1,856 92.4	1,760 87.6
United States	4,460 222.1	6,696 333.5	10,400 517.9	12,079 601.5	16,171 805.3	17,150 854.1	17,720 882.5	18,470 919.8	18,700 931.3	16,800 836.6	15,930 793.3	15,400 766.9	15,182 756.1	15,258 759.8
Total	**4,663** **232.2**	**7,025** **349.9**	**11,402** **567.8**	**13,434** **669.0**	**18,297** **911.2**	**19,375** **964.9**	**19,942** **993.2**	**20,638** **1,027.8**	**20,900** **1,040.9**	**18,820** **937.2**	**17,737** **883.3**	**17,269** **860.0**	**17,038** **848.5**	**17,018** **847.4**

AFRICA

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Algeria	... ...	... ...	... ...	47 2.3	122 6.1	122 6.1	122 6.1	122 6.1	122 6.1	137 6.8	137 6.8	464 23.1	465 23.2	465 23.2
Angola-Cabinda	... ...	... ...	2 0.1	20 1.0	32 1.6	32 1.6	36 1.8	31 1.5	32 1.6	32 1.6	32 1.6	32 1.6	32 1.6	32 1.6
Cameroon*	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	43 2.1	43 2.1	41 2.0	43 2.1	43 2.1	43 2.1
Congo*	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	21 1.0	21 1.0	21 1.0	21 1.0
Egypt	17 0.8	39 1.9	87 4.3	193 9.6	234 11.7	251 12.5	234 11.7	292 14.5	292 14.5	341 17.0	369 18.4	369 18.4	434 21.6	452 22.5
Ethiopia*	... ...	... ...	... ...	... ...	14 0.7	14 0.7	14 0.7	14 0.7	14 0.7	14 0.7	15 0.7	14 0.7	18 0.9	18 0.9
Gabon*	... ...	... ...	... ...	... ...	20 1.0	20 1.0	20 1.0	20 1.0	20 1.0	20 1.0	20 1.0	20 1.0	23 1.1	16 0.8
Ghana	... ...	... ...	... ...	29 1.4	26 1.3	26 1.3	26 1.3	26 1.3	27 1.3	27 1.3	28 1.4	28 1.4	28 1.4	28 1.4
Ivory Coast	... ...	... ...	... ...	19 0.9	39 1.9	39 1.9	50 2.5	50 2.5	50 2.5	90 4.5	90 4.5	90 4.5	90 4.5	73 3.6
Kenya	... ...	... ...	... ...	44 2.2	95 4.7	95 4.7	95 4.7	95 4.7	79 3.9	79 3.9	79 3.9	95 4.7	95 4.7	95 4.7
Liberia*	... ...	... ...	... ...	... ...	15 0.7	15 0.7	15 0.7	15 0.7	15 0.7	15 0.7	15 0.7	15 0.7	15 0.7	15 0.7
Libya	... ...	... ...	... ...	10 0.5	135 6.7	137 6.8	138 6.9	142 7.1	130 6.5	130 6.5	125 6.2	330 16.4	330 16.4	329 16.4
Madagascar*	... ...	... ...	... ...	... ...	... ...	11 0.5	11 0.5	11 0.5	11 0.5	16 0.8	16 0.8	16 0.8	16 0.8	16 0.8
Morocco	... ...	... ...	2 0.1	35 1.7	72 3.6	72 3.6	72 3.6	72 3.6	72 3.6	74 3.7	74 3.7	80 4.0	81 4.0	81 4.0
Mozambique	... ...	... ...	... ...	20 1.0	11 0.5	16 0.8	16 0.8	16 0.8	16 0.8	16 0.8	17 0.8	17 0.8	17 0.8	17 0.8
Nigeria	... ...	... ...	... ...	40 2.0	60 3.0	159 7.9	160 8.0	160 8.0	254 12.6	260 12.9	247 12.3	250 12.5	250 12.5	250 12.5
Senegal	... ...	... ...	... ...	13 0.6	20 1.0	20 1.0	20 1.0	20 1.0	18 0.9	18 0.9	18 0.9	30 1.5	30 1.5	30 1.5
Sierra Leone*	... ...	... ...	... ...	... ...	10 0.5	10 0.5	10 0.5	10 0.5	10 0.5	10 0.5	10 0.5	10 0.5	10 0.5	10 0.5
South Africa	1 ...	... ...	25 1.2	178 8.9	446 22.2	478 23.8	478 23.8	469 23.4	424 21.1	424 21.1	389 19.4	389 19.4	389 19.4	389 19.4
Sudan	... ...	... ...	... ...	20 1.0	24 1.2	26 1.3	26 1.3	24 1.2	24 1.2	24 1.2	24 1.2	24 1.2	24 1.2	24 1.2
Tanzania	... ...	... ...	... ...	14 0.7	12 0.6	17 0.8	17 0.8	12 0.6	14 0.7	17 0.8	17 0.8	14 0.7	14 0.7	14 0.7
Togo*	... ...	... ...	... ...	... ...	... ...	20 1.0	20 1.0	20 1.0	20 1.0	20 1.0	20 1.0	20 1.0	20 1.0	20 1.0
Tunisia	... ...	... ...	... ...	23 1.1	22 1.1	34 1.7	34 1.7	34 1.7	34 1.7	34 1.7	34 1.7	34 1.7	34 1.7	34 1.7
Zaire*	... ...	... ...	... ...	... ...	17 0.8	17 0.8	16 0.8	17 0.8	17 0.8	17 0.8	17 0.8	17 0.8	17 0.8	17 0.8
Others	... ...	... ...	... ...	87 4.3	41 2.0	35 1.7	35 1.7	35 1.7	35 1.7	35 1.7	35 1.7	35 1.7	35 1.7	35 1.7
Total	18 0.8	39 1.9	116 5.7	792 39.2	1,467 72.9	1,666 82.7	1,665 82.9	1,707 84.9	1,773 88.0	1,883 94.0	1,880 93.8	2,457 122.2	2,531 125.8	2,524 125.5

*Prior to 1978, included in others

LATIN AMERICA

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Argentina	103	152	238	502	655	655	676	679	677	676	678	678	667	670
	5.1	7.6	11.9	25.0	32.6	32.6	33.7	33.8	33.7	33.7	33.8	33.8	33.2	33.4
Bahamas	...	...	...	...	500	500	500	500	500	500	500	350	...	...
	...	...	...	...	24.9	24.9	24.9	24.9	24.9	24.9	24.9	17.4	...	...
Barbados	...	...	...	3	3	3	3	3	3	3	3	3	3	3
	...	...	...	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Bolivia	1	7	12	21	40	74	74	74	61	61	47	47	47	47
	...	0.3	0.6	1.0	2.0	3.7	3.7	3.7	3.0	3.0	2.3	2.3	2.3	2.3
Brazil	4	12	156	575	1,161	1,209	1,205	1,402	1,407	1,219	1,301	1,305	1,305	1,321
	0.2	0.6	7.8	28.6	57.8	60.2	60.0	69.8	70.1	60.7	64.8	65.0	65.0	65.8
Chile	1	4	24	115	130	144	139	139	141	141	141	141	141	150
	...	0.2	1.2	5.7	6.5	7.2	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.5
Colombia	15	24	51	140	165	174	193	199	199	214	211	211	211	226
	0.7	1.2	2.5	7.0	8.2	8.7	9.6	9.9	9.9	10.7	10.5	10.5	10.5	11.3
Costa Rica	...	...	...	8	10	12	11	15	15	16	16	16	15	16
	...	...	...	0.4	0.5	0.6	0.5	0.7	0.7	0.8	0.8	0.8	0.7	0.8
Cuba	4	7	87	93	122	160	160	160	160	160	160	160	160	160
	0.2	0.3	4.3	4.6	6.1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Ecuador	2	5	7	37	96	93	86	87	90	79	84	82	88	88
	0.1	0.2	0.3	1.8	4.8	4.6	4.3	4.3	4.5	3.9	4.2	4.1	4.4	4.4
El Salvador	...	...	...	14	17	17	16	16	16	16	16	16	16	17
	...	...	...	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Guatemala	...	...	...	21	14	14	16	16	16	16	16	16	16	16
	...	...	...	1.0	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Honduras	...	...	...	10	14	14	14	14	14	14	14	14	14	14
	...	...	...	0.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Jamaica	...	...	...	28	33	33	34	22	22	36	36	36	36	36
	...	...	...	1.4	1.6	1.6	1.7	1.1	1.1	1.8	1.8	1.8	1.8	1.8
Mexico	98	160	357	515	1,384	1,244	1,394	1,394	1,470	1,289	1,269	1,269	1,269	1,349
	4.9	8.0	17.8	25.6	68.9	62.0	69.4	69.4	73.2	64.2	63.2	63.2	63.2	67.2
Netherlands Antilles	495	617	680	795	842	842	792	782	782	782	740	740	320	320
	24.7	30.7	33.9	39.6	41.9	41.9	39.4	38.9	38.9	38.9	36.9	36.9	15.9	15.9
Nicaragua	...	...	...	21	15	15	14	14	14	14	15	15	15	15
	...	...	...	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Panama	...	...	...	140	100	100	100	100	100	100	100	100	100	100
	...	...	...	7.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Paraguay	...	...	...	5	5	5	7	8	8	8	8	8	8	8
	...	...	...	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Peru	22	35	49	104	171	171	170	169	162	168	169	176	176	176
	1.1	1.7	2.4	5.2	8.5	8.5	8.5	8.4	8.1	8.4	8.4	8.8	8.8	8.8
Puerto Rico	...	...	84	155	284	284	284	284	284	123	121	121	121	121
	...	...	4.2	7.7	14.1	14.1	14.1	14.1	14.1	6.1	6.0	6.0	6.0	6.0
Trinidad & Tobago	49	104	182	417	461	461	456	456	456	375	375	320	260	300
	2.4	5.2	9.1	20.8	23.0	23.0	22.7	22.7	22.7	18.7	18.7	15.9	12.9	14.9
Uruguay	5	16	28	40	43	43	40	40	45	45	45	45	45	45
	0.2	0.8	1.4	2.0	2.1	2.1	2.0	2.0	2.2	2.2	2.2	2.2	2.2	2.2
Venezuela	55	254	886	1,324	1,446	1,446	1,446	1,349	1,323	1,284	1,224	1,224	1,230	1,225
	2.7	12.6	44.1	65.9	72.0	72.0	72.0	67.2	65.9	63.9	61.0	61.0	61.3	61.0
Virgin Islands	...	...	...	220	728	728	728	728	640	600	600	545	600	600
	...	...	...	11.0	36.3	36.3	36.3	36.3	31.9	29.9	29.9	27.1	29.9	29.9
Others	...	...	...	31	58	60	62	62	59	77	55	57	57	57
	...	...	...	1.5	2.9	3.0	3.1	3.1	2.9	3.8	2.7	2.8	2.8	2.8
Total	854	1,387	2,841	5,334	8,497	8,501	8,620	8,712	8,664	8,018	7,945	7,695	6,920	7,080
	42.3	69.4	141.5	265.3	422.9	423.2	429.2	433.7	431.3	399.1	395.6	383.1	344.4	352.5

ASIA-PACIFIC

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Australia	4 0.2	14 0.7	237 11.8	581 28.9	709 35.3	708 35.3	725 36.1	743 37.0	742 37.0	716 35.7	722 36.0	697 34.7	623 31.0	626 31.2
Bangladesh	... ...	... ...	... ...	... ...	**31 1.5**	**31 1.5**	**31 1.5**	**31 1.5**	**31 1.5**	**31 1.5**	**22 1.1**	**31 1.5**	**31 1.5**	**31 1.5**
Brunei-Malaysia-Singapore	10 0.5	10 0.5	46 2.3	302 15.0	1,086 54.1	1,058 52.7	1,093 54.4	1,246 62.1	1,271 63.3	1,271 63.3	1,313 65.4	1,286 64.0	1,240 61.8	1,183 58.9
Burma*	... ...	... ...	... ...	... ...	**28 1.4**	**26 1.3**	**26 1.3**	**26 1.3**	**26 1.3**	**26 1.3**	**26 1.3**	**26 1.3**	**26 1.3**	**26 1.3**
Guam*	... ...	... ...	... ...	... ...	30 1.5	30 1.5	44 2.2	44 2.2	44 2.2	44 2.2	44 2.2	44 2.2	... ...	... ...
India	**10 0.5**	**6 0.3**	**112 5.6**	**436 21.7**	**564 28.1**	**626 31.2**	**557 27.7**	**557 27.7**	**557 27.7**	**753 37.5**	**779 38.8**	**705 35.1**	**867 43.2**	**991 49.4**
Indonesia	170 8.5	203 10.1	274 13.6	268 13.3	528 26.3	528 26.3	528 26.3	445 22.2	498 24.8	341 17.0	387 19.3	631 31.4	636 31.7	636 31.7
Japan	**53 2.6**	**34 1.7**	**640 31.9**	**2,796 139.2**	**5,462 272.0**	**5,480 272.9**	**5,509 274.3**	**5,454 271.6**	**5,601 278.9**	**5,548 276.3**	**5,020 250.0**	**4,813 239.7**	**4,613 229.7**	**4,790 238.5**
Korea, South	... ...	... ...	... ...	175 8.7	475 23.7	542 27.0	601 29.9	607 30.2	755 37.6	755 37.6	776 38.6	776 38.6	782 38.9	862 42.9
New Zealand*	... ...	... ...	... ...	... ...	**74 3.7**	**74 3.7**	**74 3.7**	**74 3.7**	**74 3.7**	**74 3.7**	**74 3.7**	**53 2.6**	**53 2.6**	**54 2.7**
Okinawa*	... ...	... ...	... ...	... ...	209 10.4	196 9.8	198 9.9	208 10.4	208 10.4	183 9.1	153 7.6	153 7.6	110 5.5	... ...
Pakistan	... ...	**5 0.2**	**6 0.3**	**115 5.7**	**106 5.3**	**110 5.5**	**98 4.9**	**122 6.1**	**133 6.6**	**133 6.6**	**126** [illegible]	**129 6.4**	**130 6.5**	**130 6.5**
Philippines	... ...	... ...	22 1.1	180 9.0	253 12.6	253 12.6	253 12.6	246 12.3	286 14.2	286 14.2	286 14.2	286 14.2	216 10.8	286 14.2
Sri Lanka*	... ...	... ...	... ...	... ...	**38 1.9**	**38 1.9**	**38 1.9**	**50 2.5**	**50 2.5**	**50 2.5**	**50 2.5**	**50 2.5**	**50 2.5**	**50 2.5**
Taiwan	... ...	... ...	28 1.4	129 6.4	425 21.2	425 21.2	425 21.2	515 25.6	515 25.6	515 25.6	515 25.6	543 27.0	543 27.0	543 27.0
Thailand	... ...	... ...	**1** ...	**62 3.1**	**160 8.0**	**161 8.0**	**186 9.3**	**186 9.3**	**176 8.8**	**176 8.8**	**176 8.8**	**172 8.6**	**192 9.6**	**192 9.6**
Others	27 1.3	4 0.2	9 0.4	137 6.8	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...
Total	**274 13.6**	**276 13.7**	**1,375 68.4**	**5,181 257.8**	**10,178 507.0**	**10,286 512.4**	**10,386 517.2**	**10,554 525.7**	**10,967 546.1**	**10,902 542.9**	**10,469 521.4**	**10,385 517.4**	**10,112 503.6**	**10,400 517.8**

***Prior to 1978, included in others**

MIDDLE EAST

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Abu Dhabi*	... ...	... ...	... ...	... ...	15 0.7	15 0.7	14 0.7	14 0.7	128 6.4	135 6.7	185 9.2	185 9.2	185 9.2	185 9.2
Bahrain	33 1.6	150 7.5	187 9.3	265 13.2	250 12.5	250 12.5	250 12.5	250 12.5	250 12.5	250 12.5	250 12.5	250 12.5	250 12.5	250 12.5
Iran	333 16.6	502 25.0	495 24.7	702 35.0	911 45.4	921 45.9	921 45.9	1,121 55.8	530 26.4	530 26.4	530 26.4	530 26.4	530 26.4	530 26.4
Iraq	4 0.2	9 0.4	56 2.8	83 4.1	169 8.4	169 8.4	168 8.4	168 8.4	169 8.4	169 8.4	169 8.4	319 15.9	319 15.9	319 15.9
Israel	... ...	83 4.1	87 4.3	115 5.7	201 10.0	195 9.7	195 9.7	190 9.5	190 9.5	190 9.5	190 9.5	170 8.5	170 8.5	180 9.0
Jordan*	... ...	... ...	... ...	... ...	30 1.5	30 1.5	21 1.0	36 1.8	91 4.5	100 5.0	100 5.0	100 5.0	100 5.0	100 5.0
Kuwait†	... ...	25 1.2	270 13.4	569 28.3	712 35.5	712 35.5	645 32.1	645 32.1	623 31.0	623 31.0	623 31.0	669 33.3	634 31.6	618 30.8
Lebanon	... ...	6 0.3	24 1.2	37 1.8	53 2.6	53 2.6	53 2.6	52 2.6	52 2.6	52 2.6	52 2.6	17 0.8	17 0.8	37 1.8
Qatar*	... ...	... ...	... ...	... ...	10 0.5	11 0.5	11 0.5	13 0.6	13 0.6	12 0.6	63 3.1	56 2.8	56 2.8	62 3.1
Saudi Arabia	... ...	140 7.0	189 9.4	465 23.2	586 29.2	487 24.3	487 24.3	487 24.3	487 24.3	705 35.1	860 42.8	840 41.8	1,115 55.5	1,125 56.0
Syria	... ...	... ...	... ...	54 2.7	102 5.1	223 11.1	223 11.1	223 11.1	223 11.1	229 11.4	229 11.4	228 11.4	229 11.4	229 11.4
Turkey	... ...	1 ...	7 0.3	209 10.4	326 16.2	338 16.8	356 17.7	356 17.7	367 18.3	467 23.3	472 23.5	460 22.9	460 22.9	460 22.9
Yemen, South	... ...	... ...	120 6.0	178 8.9	143 7.1	143 7.1	175 8.7	175 8.7	178 8.9	178 8.9	130 6.5	178 8.9	162 8.1	170 8.5
Others	... ...	... ...	1 ...	9 0.4	... ...	... ...	... ...	... ...	... ...	46 2.3	48 2.4	50 2.5	48 2.4	58 2.9
Total	**370 18.4**	**916 45.5**	**1,436 71.4**	**2,686 133.7**	**3,508 174.7**	**3,547 176.6**	**3,519 175.2**	**3,730 185.8**	**3,301 164.5**	**3,686 183.7**	**3,901 194.3**	**4,052 201.9**	**4,275 213.0**	**4,323 215.4**
Total, excl. U.S.S.R., China, E. Europe	**6,617 328.3**	**10,524 523.5**	**21,146 1,052.7**	**42,084 2,085.1**	**62,675 3,120.9**	**63,704 3,172.1**	**64,374 3,205.6**	**65,547 3,264.1**	**65,348 3,254.1**	**60,741 3,024.7**	**58,472 2,911.7**	**57,620 2,878.1**	**55,250 2,751.3**	**55,299 2,753.8**

***Prior to 1978, included in others. †Includes Neutral Zone.**

U.S.S.R.-EASTERN EUROPE-CHINA

Upper figures = 1,000 b/d
Lower figures = million t/y

	1940	1950	1960	1970	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
China	... ...	8 0.4	98 4.9	300 14.9	1,400 69.7	1,578 78.6	1,600 79.7	1,810 90.1	1,810 90.1	2,000 99.6	2,050 102.1	2,150 107.1	2,150 107.1	2,200 109.6
Czechoslovakia	... ...	16 0.8	46 2.3	220 11.0	413 20.6	445 22.2	455 22.7	455 22.7	455 22.7	455 22.7	455 22.7	455 22.7	455 22.7	455 22.7
Hungary	... ...	20 1.0	58 2.9	130 6.5	226 11.3	230 11.5	290 14.4	312 15.5	312 15.5	311 15.5	312 15.5	242 12.1	242 12.1	242 12.1
Poland	... ...	4 0.2	20 1.0	156 7.8	370 18.4	380 18.9	385 19.2	385 19.2	385 19.2	385 19.2	385 19.2	385 19.2	385 19.2	385 19.2
Romania	... ...	182 9.1	260 12.9	356 17.7	508 25.3	533 26.5	608 30.3	617 30.7	617 30.7	617 30.7	617 30.7	617 30.7	617 30.7	617 30.7
U.S.S.R.	... ...	900 44.8	2,800 139.4	5,640 280.9	9,785 487.3	10,478 521.8	10,950 545.3	11,400 567.7	11,600 577.7	11,750 585.2	12,000 597.6	12,200 607.6	12,260 610.5	12,260 610.5
Others	... ...	4 0.2	40 2.0	332 16.5	810 40.3	823 41.0	852 42.4	852 42.4	852 42.4	898 44.7	894 44.5	894 44.5	894 44.5	894 44.5
Total	... ...	**1,134 56.5**	**3,322 165.4**	**7,134 355.3**	**13,812 672.9**	**14,487 720.5**	**15,140 754.0**	**15,831 788.3**	**16,031 798.3**	**16,416 817.6**	**16,713 832.3**	**16,943 843.9**	**17,003 846.8**	**17,053 849.3**
World total	**6,617 328.8**	**11,658 580.0**	**24,468 1,218.1**	**49,218 2,450.4**	**76,187 3,793.8**	**78,171 3,892.6**	**79,514 3,959.6**	**81,378 4,052.4**	**81,379 4,052.4**	**77,157 3,842.3**	**75,185 3,744.0**	**74,763 3,723.0**	**72,253 3,598.1**	**72,352 3,603.1**

World sulfur derived from oil, gas production

As of Jan. 1, 1987

Company and location	Source	Type of process	— Metric tons/day — Design capacity	Production
ABU DHABI				
Abu Dhabi National Oil Co.				
Thamama C Bab	nat. gas	Claus	800.0	285.0
Ruwais	ref. gas	Claus	93.0	30.0
ARGENTINA				
Duperial				
San Lorenzo	acid gas	....	44.2	0
Electroclor SAIC				
Capitan Bermudez, Santa Fe	carb. disulf	....	10.6	9.7
AUSTRALIA				
Caltex Refining CPL				
Kurnell, NSW	ref. gas	Claus	70.0	12.2
Petroleum Refineries Australia PL				
Adelaide	ref. gas	....	26.0	4.0
Altona	ref. gas	....	25.0	4.0
Shell Refining (Australia)				
Clyde, NSW	ref. gas	Claus-DEA	75.0	9.0
Geelong, Victoria	ref. gas	Claus-DEA	80.0	20.0
AUSTRIA				
OeMV AG				
Aderklaa	nat. gas	Claus	32.0	18.0
Schwechat	ref. gas	Claus	215.0	97.0
Schwechat	flue gas	Claus	34.0	....
BAHRAIN				
Bahrain Petroleum Co. BSC (Closed)				
Sitra	ref. gas	Mod. Claus	150.0	128.0
BELGIUM				
Belgian Refining Corp.				
Antwerp	ref. gas	....	108.5	....
Esso Belgium NV				
Antwerp	ref. gas	2 Claus 1 IFP	350.0	230.0
SIBP				
Antwerp	ref. gas	Claus	225.0	60.0
BRAZIL				
Petrobras				
Recap—Capuava, SP	crude oil	....	25.0	3.0
Refap—Canoas, RS	crude oil	....	20.0	17.0
Regap—Betim, MG	crude oil	....	60.0	31.0
Repar—Araucária, PR	crude oil	....	65.0	58.0
Replan—Paulínia, SP	crude oil	....	60.0	36.0
Revap—São Jose Campos, SP	crude oil	....	170.0	45.0
Petroflex SA				
Duque de Caxias, RJ	ref. gas acid gas	Claus	40.0	30.0
Ultrafertil SA				
Araucária, PR	resid asphalt	Claus Claus Pool 1500	57.8	35.0
Cubatão, SP	ref. gas acid gas	Claus	45.0	18.0
CANADA				
Amoco Canada Petroleum CL				
Bigstone, Al	nat. gas	2 bed Claus	382.0	120.0
East Crossfield, Al	nat. gas	3 bed Claus and CBA	1,673.7	1,040.0
West Whitecourt, Al	nat. gas	2 bed Claus	1,225.0	1,000.0
Canadian Occidental Petroleum Ltd.				
Paddie River, Al	nat. gas	....	25.4	8.0
Canterra Energy Ltd.				
Nordegg River, Al	nat. gas	Claus	40.0	24.0
Okotoks, Al	nat. gas	Claus	440.0	400.0
Rainbow Lake, Al	oil and gas	Claus	150.0	60.0
Ram River, Al	nat. gas	Claus	4,600.0	2,950.0
Chevron Canada Ltd.				
Burnaby, BC	ref. gas	....	10.0	1.0
Chevron Canada Resources Ltd.				
Kaybob, South Al	nat. gas	....	3,200.0	1,094.0
Dome Petroleum Ltd.				
Brazeau, Al	nat. gas	Mod. Claus	118.2	40.0
Caroline, Al	nat. gas	Mod. Claus	19.0	6.0
Edson, Al	nat. gas	Mod. Claus	297.0	110.0
Kaybob I-II, Al	nat. gas	Mod. Claus	1,097.0	450.0
Lone Pine, Al	nat. gas	Mod. Claus	283.0	106.0
Sturgeon Lake, Al	nat. gas	Mod. Claus	105.0	76.0
West Pembina, Al	nat. gas	Mod. Claus	300.0	300.0
Zama, Al	nat. gas	Mod. Claus	80.0	21.0
Esso Resources Canada Ltd.				
Joffre	solution gas	....	28.9	6.0
Quirk Creek	nat. gas	....	294.0	119.0
Redwater	solution gas	....	25.0	12.4
Gulf Canada Corp.				
Hanlan-Robb, Al	nat. gas	Mod. Claus Sulfreen-TG	1,100.0	520.0
Nevis, Al	nat. gas	Mod. Claus Sulfreen-TG	163.0	110.0
Rimbey, Al	nat. gas	Mod. Claus	333.0	100.0
Strachan, Al	nat. gas	4 bed Amoco Cold bed adsorption	1,000.0	450.0
Mobil Oil Canada Ltd.				
Harmattan, Al	nat. gas	Claus 3 stage	430.0	150.0
Lone Pine Creek So., Al	nat. gas	Claus 3 stage	119.0	60.0
Teepee Creek, Al	nat. gas	Claus 2 stage	30.0	30.0
Wimborne, Al	nat. gas	Claus 2 stage	340.0	125.0
Petro-Canada Inc.				
Brazeau, Al	nat. gas	....	78.4	78.4
Gold Creek, Al	nat. gas	....	100.0	15.0
Wildcat Hills, Al	nat. gas	....	170.0	80.0
Petrogas Processing Ltd.				
Calgary, Al	nat. gas	....	1,670.0	....
Saratoga Processing CL				
Coleman, Al	sour gas	Mod. Claus	400.0	278.0
Shell Canada Ltd.				
Sarnia, Ont.	ref. gas	Claus	35.0	15.0
Scotford, Al	ref. gas	Claus	10.0	3.0
Vancouver, BC	ref. gas	Claus-Scot	15.0	5.0
Shell Canada Resources Ltd.				
Burnt Timber, Al	nat. gas	Claus	490.0	396.0
Innisfail, Al	nat. gas	Claus	160.0	15.0
Jumping Pound, Al	nat. gas	Claus	570.0	427.0
Progress, Al	nat. gas	Claus-MCRC	13.0	....
Rosevear, Al	nat. gas	Claus	160.0	49.0
Simonette, Al	nat. gas	Claus	260.0	75.0
Waterton, Al	nat. gas	Claus-Scot	2,900.0	2,452.0
Sulconam Inc.				
Montreal East, Que.	ref. gas	Claus	300.0	125.0
Sulpetro				
Minnehik-Buck Lake, Al	nat. gas	Claus 2 stage	35.0	22.0
Suncor Inc.				
Ft. McMurray, Al	oil sands	....	730.0	208.0
Rosevear, Al	nat. gas	....	....	40.0
Sarnia, Ont.	ref. gas	....	....	14.0
Syncrude Canada Ltd.				
Mildred Lake, Al	oil sands	Claus 3 stage	970.0	830.0
Texaco Canada Resources Ltd.				
Bonnie Glen, Al	nat. gas	Mod. Claus	15.0	8.3
Westcoast Transmission CL				
Chetwynd, BC	sour gas	MCRC	1,034.0	560.0
Fort Nelson, BC	sour gas	Mod. Claus Sulfreen	650.0	390.0
Taylor, BC	sour gas	Mod. Claus	460.0	260.0
Western Decalta Petroleum Ltd				
Hartell, Al	nat. gas	Claus 3 stage	10.7	10.7
CHINA, TAIWAN				
Chinese Petroleum Corp.				
Kaohsiung	ref. gas	Parsons	135.0	
Tao-Yuan	ref. gas	Amoco	520.0	152.5
COLOMBIA				
Empresa Colombiana de Petroleos				
Barrancabermeja	ref. gas	Claus	80.0	42.0
DENMARK				
A/S Dansk Shell				
Fredericia	ref. gas	Claus	25.0	8.0
Kuwait Petroleum Refining Denmark A/S				
Gulfhavn	ref. gas	Claus	50.0	26.0
EGYPT				
Ameria Petroleum Refining Co.				
Alexandria	ref. gas			3.0

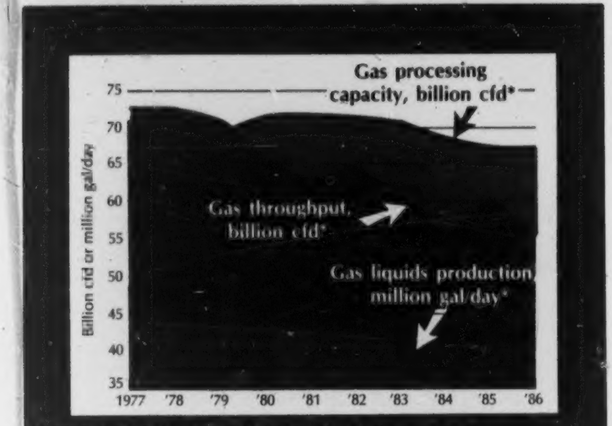
			— Metric tons/day —	
Company and location	**Source**	**Type of process**	**Design capacity**	**Production**
General Petroleum Co.				
Eastern Desert	nat. gas	....	....	8.0
Suez Oil Processing Co.				
El-Suez	ref. gas	....	81.5	9.0
FINLAND				
Neste Oy				
Naantali	ref. gas	....	55.0	27.0
Porvoo	ref. gas	....	215.0	110.0
FRANCE				
Cie. de Raff. et de Distillation Total France				
Gonfreville l'Orcher	refinery	Claus	190.0	130.0
La Mede	refinery	Claus	190.0	90.0
Mardyck	refinery	Claus	127.0	80.0
Cie. Rhenane de Raffinage				
Reichstett	refinery	Claus	70.0	22.0
Elf France				
Donges	refinery	Claus	210.0	66.4
Feyzin	refinery	Claus	118.0	40.0
Grandpuits	refinery	Claus	125.0	27.0
Esso SA Francaise				
Fos-sur-Mer	refinery	....	21.9	18.5
Port Jerome	refinery	....	21.9	9.1
Shell Francaise				
Berre	refinery	Claus	210.0	140.0
Petit-Couronne	refinery	Claus	210.0	140.0
Ste. Francaise des Petroles BP				
Lavera	ref. gas	....	122.0	....
Ste. Francaise Hoechst				
Port Jerome	ref. gas	Claus	240.0	....
Ste. Nationale Elf Aquitaine				
Lacq	sour gas	Claus Sulfreen	....	2,591.8
GERMANY				
Deutsche BP				
Vohburg	gas oil	IFP TG and Claus	60.0	17.0
Deutsche Marathon				
Burghausen	ref. gas	Claus	33.0	15.0
Deutsche Shell				
Godorf	refinery	Claus-Scot	140.0	60.0
Harburg	refinery	Claus-Scot	78.5	30.0
Deutsche Texaco				
Heide	ref. gas	2 Claus Maxisulf	57.0	21.0
Erdgasaufbereitungsanlage				
Grossenkneten	nat. gas	....	2,100.0	1,527.0
Erdolraffinerie Ingolstadt AG				
Ingolstadt	gas oil	IFP TG and Claus	32.0	22.0
Erdol-Raffinerie Neustadt GmbH & Co. oHG				
Neustadt-Donau	refinery	Claus Sulfreen	89.0	23.0
Esso				
Hamburg	rinery	Claus Sulfreen	80.0	20.0
Ingolstadt	refinery	Claus Sulfreen	50.0	31.0
Karlsruhe	refinery	Claus Sulfreen	100.0	55.0
Mobil Oil AG				
Woerth	ref. gas	....	60.0	12.0
Norddeutsche Erdgas-Aufbereitungs				
Sulingen	nat. gas	....	1,050.0	750.0
OMW GmbH				
Karlsruhe	ref. gas	Claus Sulfreen	175.0	....
Ruhr Oel GMBH				
Gelsenkirchen	refinery	....	415.0	....
Union Rheinische Braunkohlen Kraftstoff AG,				
Wesseling	ref. gas	Claus	375.0	50.0
Wintershall AG				
Dueste	nat. gas	....	320.0	200.0
Lingen	ref. gas	....	72.0	60.0
Mannheim	ref. gas	....	52.0	....
GREECE				
Hellenic Aspropyrgos Refinery SA				
Aspropyrgos, Attiki	ref. gas	Claus	40.0	35.0
Motor Oil Hellas				
Corinth	refinery	....	90.0	16.0
HUNGARY				
Danube Petroleum Refining Co.				
Szazhalombatta	refinery	Claus	77.0	65.0
Tisza Petroleum Refining Co.				
Leninvaros	refinery	Claus	24.0	13.0
ISRAEL				
Oil Refineries Ltd.				
Ashdod	ref. gas	Claus	30.0	30.0
Haifa	ref. gas	Claus	50.0	50.0
ITALY				
API-Raffineria di Ancona SpA				
Falconara	ref. gas	Claus	41.0	35.0
Esso Italiana				
Augusta	ref. gas	....	104.0	52.0
Trecate	refinery	....	40.0	30.0
Industria Italiana Petroli				
Rho	ref. gas	Claus	30.0	14.3
Taranto	ref. gas	Claus	121.0	43.9
Irom				
Porto Marghera	refinery	Claus	20.0	13.7
Isab				
Melilli	refinery	....	310.0	....
Mediterranea				
Milazzo	ref. gas	Claus	100.0	....
Mobil Oil Italiana				
Naples	ref. gas	....	70.0	8.0
Raffineria del Po				
Sannazzarro	ref. gas	Claus	80.0	38.7
Saras				
Sarroch	ref. gas	Parsons	35.0	(spare)
Sarroch	ref. gas	Parsons	90.0	65.0
Stanic				
Livorno	ref. gas	Claus	21.0	16.6
Tamoil Italia				
Cremona	ref. gas	Claus	12.0	6.0
Cremona	ref. gas	Claus	30.0	12.0
IVORY COAST				
Soc. Ivoirienne de Raffinage				
Abidjan-Vridi	ref. gas	....	40.0	....
JAPAN				
Asia Kyoseki Co.				
Sakaide	ref. gas	Parsons	80.0	40.0
	ref. gas	Uhde	185.0	90.0
Asia Oil CL				
Yokohama	ref. gas	Parsons	200.0	0
Cosmo Oil CL				
Chiba	ref. gas	Parsons	600.0	250.0
Sakai	ref. gas	70 t/d Pan American Parsons 70 t/d	140.0	50.0
Yokkaichi	ref. gas	Parsons	200.0	40.0
Fuji Oil CL				
Sodegaura, Chiba	ref. gas	Comprimo	150.0	130.0
Sodegaura, Chiba	ref. gas	Parsons	90.0	....
General Sekiyu KK				
Sakai	ref. gas	Claus Flexsorb SE amine	386.0	148.0
Idemitsu Kosan CL				
Aichi	ref. gas	Uhde	400.0	196.0
Chiba	ref. gas	Uhde-Parsons	560.0	265.0
Hokkaido	ref. gas	Comprimo	50.0	26.0
Hyogo	ref. gas	Parsons	230.0	105.0
Tokuyama	ref. gas	Girdler-Uhde	235.0	69.0
Kashima Oil CL				
Kashima	ref. gas	Parsons	420.0	100.0
Koa Oil CL				
Marifu	ref. gas	Parsons	45.0	....
Marifu	ref. gas	Comprimo	35.0	15.0
Osaka	ref. gas	Parsons	60.0	25.0
Kyokuto Petroleum Industries Ltd.				
Chiba	ref. gas	....	215.0	48.0
Nichimo Sekiyu KK				
Kawasaki	refinery	....	22.6	....
Nippon Mining CL				
Mizushima	ref. gas	Uhde-Claus	200.0	90.0
Mizushima	ref. gas	Comprimo Claus	200.0	90.0
Nagoya, Aichi	ref. gas	Uhde-Claus	150.0	60.0
Nippon Petroleum Refining CL				
Muroran	ref. gas	Parsons	420.0	107.0
Negishi	ref. gas	Parsons	320.0	135.0
Nippon Steel Chemical CL				
Oita	BTX refin.	....	3.0	3.0
Tobata	coke oven gas	....	2.1	2.1
Okinawa Sekiyu Seisei CL				
Okinawa City	refinery	....	300.0	180.0
Seibu Oil Co.				
Yamaguchi	refinery	....	320.0	....
Showa Oil Co.				
Kawasaki	fuel oil	....	80.0	....
Showa Yokkaichi Seikyu KK				
Yokkaichi	ref. gas	....	280.0	....
Toa Nenryo Kogyo KK				
Kawasaki	ref. gas	Claus	295.0	87.0
Wakayama	ref. gas	Claus	169.0	71.0
Toa Oil Co.				
Kawasaki	ref. gas	Claus	330.0	125.3

Company and location	Source	Type of process	— Metric tons/day — Design capacity	Production
KOREA				
Ssangyong Refining CL				
Onsan	ref. gas	Claus	43.8	28.0
KUWAIT				
Kuwait National Petroleum Co.				
Mina Abdullah	ref. gas	Claus	165.0	150.0
Mina Al-Ahmadi	ref. gas	Claus	*1,334.0	600.0
Shuaiba	ref. gas	Claus	†1,200.0	300.0
*Two identical units—each 267 t/d. and two identical units—each 400 t/d.				
†Two identical units—each 600 t/d.				
MEXICO				
Petroleos Mexicanos				
Azcapotzalco, DF	ref. gas	Claus	22.6	17.8
Cadereyta, Ver.	ref. gas	Claus	71.2	11.4
Cactus, Chis	nat. gas	Claus	1,302.0	501.7
Cuidad Madero, Tamps	ref. gas	Claus	54.8	27.1
Ciudad Pemex, Tab.	nat. gas	Claus	650.9	285.3
Matapionche, Ver.	nat. gas	Claus	27.1	14.6
Minatitlan, Ver	ref. gas	Claus	71.2	0.9
Nuevo Pemex, Tab.	nat. gas	Claus	650.9	324.9
Poza Rica, Ver	nat. gas	Claus	126.6	55.0
Salamanca, Gto	ref. gas	Claus	153.4	4.1
Salina Cruz, Oax.	ref. gas	Claus	71.2	7.6
Tula, Hgo	ref. gas	Claus	153.7	16.6
NETHERLANDS				
BP Raffinaderij Nederland NV				
Rotterdam	ref. gas	Claus	172.0	73.0
Esso Nederland				
Rotterdam	ref. gas	....	564.0	285.0
Kuwait Petroleum Europoort BV				
Europoort	ref. gas	Claus	45.9	34.9
Shell Nederland Raffinaderij				
Rotterdam	refinery	Claus	540.0	175.0
Texaco				
Pernis	ref. gas	Claus	90.0	23.5
NETHERLANDS ANTILLES				
Refineria Isla Curazao SA				
Emmastad	refinery	....	225.0	85.0
NORWAY				
Norske Shell a.s.				
Sola	refinery	Claus	20.0	3.0
Rafinor a.s.				
Mongstad	ref. gas	....	13.0	11.0
PORTUGAL				
Petrogal				
Lisbon	cat cracking gas	Claus	30.0	21.0
Sines	ref. gas	Claus	100.0	10.0
PUERTO RICO				
Yabucoa Sun Oil Co.				
Yabucoa	acid gas	Claus	34.0	12.0
QATAR				
Qatar Petrochemical Co.				
Umm Said	acid gas	Claus	140.0	133.0
SAUDI ARABIA				
Petromin				
Berri	associated gas	Claus	1,200.0	640.0
Ras Tanura	refinery	....	270.0	71.0
Shedgum	associated gas	Claus	1,700.0	1,690.0
Uthmaniyah	associated gas	Claus	1,100.0	1,200.0
Petromin Mobil Refining Co.				
Yanbu	refinery	....	300.0	200.0
Petromin Shell Refining Co.				
Jubail	refinery	....	300.0	161.0
SINGAPORE				
Esso Singapore PvL				
Jurong	ref. gas	Claus	126.0	12.0
Mobil Oil Singapore PL				
Jurong	ref. gas	....	110.0	25.0
Shell Eastern Petroleum				
Pulau Bukom	refinery	Claus	300.0	100.0
Singapore Petroleum CPvL*	ref. gas	Claus	257.0	93.0
Singapore Refining Co.	refinery		*217.0	65.0
Jurong	....		....	....
*36.7% share in design capacity.				
SOUTH AFRICA				
Mobil Refining Co. of Southern Africa PL				
Durban	ref. gas		70.0	25.0
National Petroleum Refiners of South Africa PL				
Sasolburg	ref. gas	Claus	90.0	....
Shell & BP South Africa Petroleum Refineries PL				
Durban	ref. gas	....	106.0	....
SPAIN				
Empetrol				
Cartagena	refinery	Claus	27.0	....
La Coruña	refinery	Claus	49.0	....
Puertollano	refinery	Claus	80.0	19.0
Tarragona	refinery	Claus	144.0	65.0
Petronor				
Muskiz, Vizcaya	ref. gas	Claus	242.0	88.0
Union Explosivos Rio Tinto SA				
La Rábida, Huelva	ref. gas	Claus	12.0	8.0
SWEDEN				
BP Raffinaderi Goteburg AB				
Gothenburg	ref. gas	....	6.0	....
Shell Raffinaderi BV				
Gothenburg	refinery	Claus	27.0	8.0
Skandinaviska Raffinaderi AB				
Lysekil	refinery fuel	Claus	225.0	125.0
SWITZERLAND				
Raffinerie de Cressier SA				
Cressier	refinery	Claus	20.0	8.0
TRINIDAD				
Trinidad and Tobago Oil CL				
Pointe-a-Pierre	ref. gas	Claus	250.0	....
TURKEY				
Tupras				
Izmir	ref. gas	Claus	14.2	6.0
Izmit	ref. gas	Claus	45.0	6.0
Kirikkale	ref. gas	Claus	23.2	3.0
UNITED KINGDOM				
Amoco U.K.				
Milford Haven	refinery	Claus	76.0	....
BP Oil				
Grangemouth	ref. gas	....	100.0	....
Llandarcy	ref. gas	....	45.0	....
Conoco Ltd.				
South Humberside	ref. gas	....	50.0	35.0
Esso Petroleum CL				
Fawley	hydrodesulf cat plant	....	270.0	25.0
Gulf Oil Refining Ltd.				
Milford Haven	ref. gas	....	10.0	4.1
Lindsey Oil & Refining Ltd.				
Killingholm, South Humberside	ref. gas	Claus	120.0	60.0
Mobil Oil CL				
Coryton	ref. gas	....	200.0	12.0
Pembroke Cracking Co.				
Pembroke	ref. gas	Claus	160.0	19.5
Shell U.K. Oil				
Shell Haven	ref. gas	Claus	130.0	30.0
Stanlow	ref. gas	Claus	250.0	50.0
UNITED STATES				
Amoco Oil Co.				
Mandan, ND	ref. gas	Claus	15.0	....
Texas City, Tex.	ref. gas	Claus	1,400.0	....
Whiting, Ind.	ref. gas	Claus	400.0	....
Yorktown, Va.	ref. gas	Claus	56.0	....
Amoco Production Co.				
Andrews County, Tex.	nat. gas	2 bed Claus and CBA	21.8	18.0
Andrews County, Tex.	nat. gas	2 bed Claus	5.5	4.0
Ector County, Tex.	nat. gas	2 bed Claus	30.0	24.0
Eddy County, NM	nat. gas	2 bed Claus	36.0	28.0
Fremont County, Wyo.	nat. gas	2 bed Claus	61.0	20.0
Hockley County, Tex.	nat. gas	2 bed Claus	43.0	36.1
Park County, Wyo.	nat. gas	2 bed Claus	76.0	56.0
Uinta County, Wyo.	nat. gas	2 bed Claus and CBA	1,205.0	1,080.0
Van Zandt, Tex.	nat. gas	3 bed Claus	313.0	218.0
Wood County, Tex.	nat. gas	2 bed Claus	30.0	16.0
Arco Petroleum Products Co.				
Carson, Cal.	ref. gas	....	180.0	....
Cherry Point, Wash.	ref. gas	....	170.0	....
Houston, Tex.	ref. gas	....	350.0	....
Ashland Petroleum Co.				
Canton, Oh.	refinery	Claus	99.8	17.8
Catlettsburg, Ky.	refinery	Claus	199.6	98.8
St. Paul Park, Mn.	refinery	Claus	39.9	14.6
BP Oil Corp.				
Belle Chasse, La.	ref. gas	Claus-Scot	50.0	....
Marcus Hook, Pa.	ref. gas	Claus-Scot	160.0	....
Cenex				
Laurel, Mont.	ref. gas	Claus	48.7	20.0
Champlin Petroleum Co.				
Corpus Christi, Tex.	crude oil	Claus	240.0	205.0
Wilmington, Cal.	crude oil	Claus	107.0	80.0
Chevron U.S.A. Inc.				
Carter Creek, Wyo.	nat. gas	....	907.0	
Cincinnati, Oh.	ref. gas	....	10.1	....
El Paso, Tex.	ref. gas	....	42.0	....
El Segundo, Cal.	ref. gas	....	750.0	....
Pascagoula, Miss.	ref. gas	....	1,090.0	....
Philadelphia, Pa.	ref. gas	....	46.7	....
Port Arthur, Tex.	ref. gas	....	469.3	....
Richmond, Cal.	ref. gas	....	600.0	....
Salt Lake City, Ut.	ref. gas	....	12.0	....

Company and location	Source	Type of process	— Metric tons/day —	
			Design capacity	Production
Citgo Petroleum Corp.				
Lake Charles, La.	ref. gas	Claus-BSRP	330.0	330.0
Coastal Refining & Marketing Inc.				
Corpus Christi, Tex.	ref. gas	Claus	85.0	60.0
Colorado Interstate Gas Co.				
Table Rock, Wyo.	nat. gas	....	80.0	21.1
Conoco				
Commerce City, Colo.	ref. gas	Claus	19.0	16.0
Westlake, La.	ref. gas	Claus	290.0	195.0
Cosden Oil & Chemical Co.				
Big Spring, Tex.	refinery	....	50.0	46.0
Crown Central Petroleum Corp.				
Pasadena, Tex.	ref. gas	Claus	14.3	11.0
Diamond Shamrock Corp.				
Moore County, Tex.	nat. gas	Claus	30.5	17.0
El Paso Hydrocarbons Co.				
Foster, Ector County, Tex.	nat. gas	Claus	20.0	13.0
Enron Corp.				
Hobbs, N.M.	nat. gas	Claus	30.5	4.8
Pecos, Texas	nat. gas	Claus	55.9	12.9
Exxon Co.				
Atascosa County, Tex.	nat. gas	2 reactor split flow Claus	...	5.4
Baton Rouge, La.	refinery	Claus	599.0	281.0
Baytown, Tex.	refinery	Claus	1,123.0	478.0
Benicia, Cal.	refinery	Claus	275.0	169.0
Crane County, Tex.	nat. gas	2 reactor Claus	....	14.9
Escambia County, Ala.	nat. gas	3 reactor Claus	....	818.7
Linden, NJ	refinery	Claus	393.0	116.0
Lincoln and Sweetwater Counties, Wyo.	nat. gas	Claus	....	409.7
Santa Rosa County, Fla.	nat. gas	3 reactor Claus	....	208.2
Farmland Industries Inc.				
Coffeyville, Kan.	refinery	Claus	19.8	8.1
Fina Oil & Chemical Co.				
Big Spring, Tex.	ref. gas	Claus	50.0	45.0
Port Arthur, Tex.	ref. gas	Claus-Scot	182.0	50.0
Fletcher Oil & Refining Co.				
Carson, Cal.	ref. gas	Locat	10.0	3.0
Frontier Oil & Refining Co.				
Cheyenne, Wyo	ref. gas	Claus-Scot	48.7	26.5
Hawaiian Independent Refinery Inc.				
Ewa Beach, Hi	ref. gas-LPG	Claus	14.0	10.5
Ewa Beach, Hi	ref. gas-LPG	Claus	5.1	0
Hill Petroleum Co.				
Houston, Tex.	ref. gas	Claus	165.0	30.0
Hunt Refining Co.				
Tuscaloosa, Ala.	ref. gas	Claus	80.0	27.0
Koch Hydrocarbon Co.				
McKenzie County, ND	nat. gas	....	187.0	100.0
Harmony, Miss.	nat. gas	....	10.0	2.0
Koch Refining Co.				
Corpus Christi, Tex.	ref. gas	....	50.0	7.0
St. Paul, Minn.	ref. gas	....	425.0	400.0
LaGloria Oil & Gas Co.				
Tyler, Tex.	refinery	3 bed Claus	9.9	5.7
Louisiana Land & Exploration Co.				
Saraland, Ala.	refinery	Claus	54.9	0
Mapco Petroleum Inc.				
Memphis, Tenn.	ref. gas	Claus-Scot	43.0	14.0
Marathon Oil Co.				
Detroit, Mich.	refinery	Claus	81.3	32.2
Eddy County, NM	nat. gas	3 bed Claus	25.4	2.0
Garyville, La.	refinery	Claus	457.2	196.6
Park County, Wyo.	nat. gas	3 bed Claus	4.7	4.0
Pecos County, Tex.	nat. gas	3 bed Claus	50.0	26.0
Robinson, Ill.	refinery	Claus	40.6	24.1
Mobil Oil Corp.				
Beaumont, Tex.	ref. gas	Claus	100.0	30.0
Ferndale, Wash.	ref. gas	Claus	19.5	12.0
Joliet, Ill.	ref. gas	Claus	315.0	270.0
Paulsboro, NJ	ref. gas	Claus	135.0	60.0
Paulsboro, NJ*	ref. gas	Claus	135.0	....
Torrance, Cal.	ref. gas	Claus	200.0	140.0
Torrance, Cal.*	ref. gas	Claus	100.0	....
Montana Sulfur & Chemical Co.				
East Billings, Mont.	ref. gas	Claus	225.0	100.0
Murphy Oil USA Inc.				
Meraux, La.	ref. gas	....	35.0	12.0
Superior, Wis.	ref. gas	....	14.0	7.0
Newhall Refining Cl				
Newhall, Cal.	refinery	....	7.5	7.0
Oxy Cities Service NGL Inc.				
Lignite, ND	nat. gas	....	14.0	5.0
Milnesand, NM	nat. gas	....	23.0	9.8
Myrtle Springs, Tex.	nat. gas	....	304.0	180.0
Welch, Tex.	nat. gas	....	1.5	0.8
West Seminole, Tex.	nat. gas	....	10.0	6.6
Pennzoil Products Co.				
Shreveport, La.	ref. gas	Claus	11.7	2.2
Phillips 66 Co.				
Andrews, Tex.	nat. gas	Claus	18.0	....
Birthright, Tex.	nat. gas	Claus	30.5	....
Borger, Tex.	refinery	Claus	240.0	....
Chatom, Ala.	nat. gas	Claus	193.0	....
Crane, Tex.	nat. gas	Claus	88.0	....
Eunice, NM	nat. gas	Claus	64.0	....
Fullerton, Tex.	nat. gas	Claus	61.0	....
Goldsmith, Tex.	nat. gas	Claus	145.0	....
Lee, NM	nat. gas	Claus	62.0	....
Sweeny, Tex.	refinery	Claus	275.0	....
Rock Island Refining Corp.				
Indianapolis, Ind.	ref. gas	Claus	20.3	3.0
Shell Oil Co.				
Bryans Mill, Tex.	nat. gas	Claus	175.0	....
Clark Avenue, Cal.	nat. gas	Claus-Scot	4.0	....
Deer Park, Tex.	refinery	Claus-Scot	410.0	....
Frederic 10, Mich.	nat. gas	Claus	20.0	....
Goodwater, Miss.	nat. gas	Claus	40.0	....
Manistee County, Mich.	nat. gas	Claus	25.0	....
Martinez, Cal.	refinery	Claus-Scot Stretford	225.0	....
Norco, La.	refinery	Claus-Scot	45.0	....
Thomasville, Miss.	nat. gas	Claus	1,245.0	....
Wilmington, Cal.	refinery	Claus-Scot	200.0	....
Wood River, Ill.	refinery	Claus-Scot	300.0	....
Sid Richardson Carbon & Gasoline Co.				
Winkler County, Tex.	nat. gas	....	20.0	8.8
Sinclair Oil Corp.				
Sinclair, Wyo.	ref. gas	Claus	25.4	13.5
Smackover-Shell Ltd.				
Henderson County, Tex.	nat. gas	Claus-Scot	660.0	....
Standard Oil Co.				
Lima, Oh.	ref. gas	Claus	40.0	....
Toledo, Oh.	ref. gas	Claus-Scot	112.0	....
Tenneco Oil Co.				
Chalmette, La.	ref. gas	Claus	360.0	180.0
Texaco Inc.				
Anacortes, Wash.	ref. gas	Claus	51.0	....
Bakersfield, Cal.	ref. gas	Claus	19.0	....
Convent, La.	refinery	Claus	660.0	....
Delaware City, Del.	ref. gas	Claus	427.0	....
El Dorado, Kan.	ref. gas	Claus	178.0	....
Franklin County, Tex.	nat. gas	Claus	223.0	93.0
Freestone County (Aker), Tex.	nat. gas	....	180.0	76.0
Freestone County (Teas), Tex.	nat. gas	....	140.0	67.0
Port Arthur, Tex.	ref. gas	Claus	238.0	....
Wilmington, Cal.	ref. gas	Claus	238.0	....
Texas Oil & Gas Corp.				
Coyanosa, Tex.	nat. gas	Claus	20.0	7.0
Pittsburg, Tex.	nat. gas	Claus	100.0	45.3
Teague, Tex.	nat. gas	Claus	10.0	2.4
Tosco				
Martinez, Cal.	ref. gas	Claus-Scot	170.0	115.0
Total Petroleum Inc.				
Alma, Mich.	ref. gas.	....	13.0	6.0
Ardmore, Ok.	ref. gas	....	15.0	10.0
Trans-Jeff Chemical Corp.				
Tilden, Tex.-No. 1	acid gas	Chance Claus	19.8	....
Tilden, Tex.-No. 2	acid gas	Chance Claus	74.9	19.0
Unocal Corp.				
Lemont, Ill.	ref. gas	Claus Bevon Stretford	300.0	....
Lemont, Ill.	ref. gas	Claus	100.0	....
Nederland, Tex.	ref. gas	Claus	17.0	....
Rodeo, Cal.	ref. gas	Claus Stretford	350.0	....
Santa Maria, Cal.	ref. gas	Claus Unisulf	139.0	....
Wilmington, Cal.	ref. gas	Claus Stretford	200.0	....
Valero Refining Co.				
Corpus Christi, Tex.	ref. gas	....	310.0	104.0
Warren Petroleum Co.				
Como, Hopkins County, Tex.	nat. gas	....	75.0	17.0
Fashing, Atascosa County, Tex.	nat. gas	....	36.0	16.0
Little Knife, Billings County, ND	nat. gas	....	125.0	100.0
Monument, Lea County, NM	nat. gas	....	32.0	15.0
Sand Hills, Crane County, Tex.	nat. gas	....	52.0	40.0
VENEZUELA				
Corpoven				
El Palito, Carabobo	refinery	Claus	42.0	24.0
Lagoven				
Amuay, Falcon	refinery	Claus	600.0	231.0
Maraven				
Cardon, Falcon	refinery	Claus	94.0	16.0

*Standby units.

U.S. gas processing trend lines drop



*Capacity as of Jan. 1 of year; production and throughput are average of preceding 12 months

Table 1

Gas processing activity in various regions

	1984	1985	Change	Change, %
U.S.				
Gas throughput, MMcfd	40,474.2	38,753.8	−1,720.4	−4.4
Gas liquids production, 1,000 gal/day	60,094.3	56,278.1	−3,716.2	−6.6
Proven gas reserves, billion cu ft	198,000*	197,000.0†	−1,000.0	−0.5
Canada				
Gas throughput, MMcfd	11,921.0	12,447.8	+526.8	+4.2
Gas liquids production, 1,000 gal/day	15,133.4	17,381.7	+2,248.3	+12.9
Proven gas reserves, billion cu ft	92,300.0*	99,700.0†	7,400.0	+7.4
Rest of the world§				
Gas throughput, MMcfd	29,942.3	31,083.3	+1,141.0	+3.7
Gas liquids production, 1,000 gal/day	49,529.2	52,152.6	+2,623.4	+5.0
Proven gas reserves, billion cu ft	1,614,325.0*	1,641,360.0†	+27,035.0	+1.6

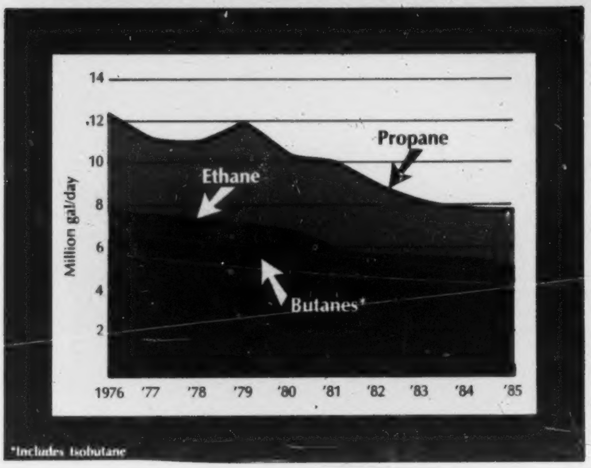
* As of Jan. 1, 1985
† As of Jan. 1, 1986 § Excludes Communist bloc and China

Table 2

Major U.S. gas-processing states in 1985

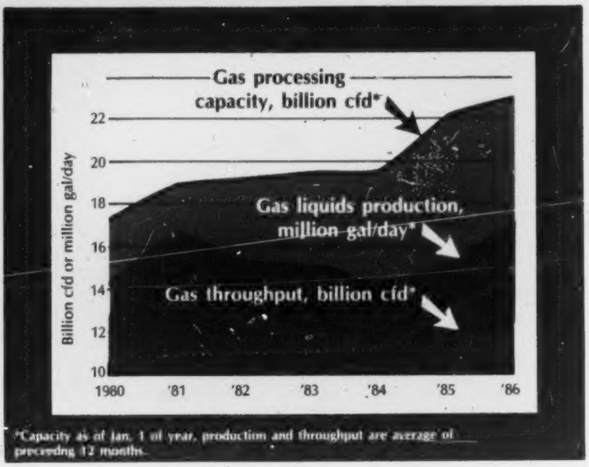
	Gas throughput, MMcfd	Share of total throughput, %	Gas capacity, MMcfd	No. of plants	NGL production, 1,000 gal/day	Share of total NGL product, %
Texas	12,116.4	31.3	19,630.8	384	26,548.6	47.1
Louisiana	10,758.5	27.8	20,366.4	94	10,085.2	17.9
Kansas	3,418.0	8.8	5,646.0	28	2,280.8	4.0
Oklahoma	2,898.2	7.5	4,989.8	108	5,692.2	10.1
New Mexico	1,924.1	5.0	3,141.6	34	3,461.7	6.1
Michigan	1,589.3	4.1	4,734.9	26	963.8	1.7
Wyoming	1,188.9	3.1	1,897.9	41	1,627.7	2.9
Arkansas	870.4	2.2	962.5	6	104.6	0.2
California	731.8	1.9	1,066.0	36	1,340.3	2.4
Florida	678.8	1.8	799.0	3	454.8	0.8
Subtotal	**36,174.4**	**93.5**	**63,234.9**	**760**	**52,558.7**	**93.2**
Other states	**2,579.4**	**6.5**	**4,494.2**	**102**	**3,820.4**	**6.8**
Total	**38,753.8**		**67,729.1**	**862•**	**56,378.1**	

Production of key products in U.S.



*Includes isobutane

Canadian gas processing rising again



*Capacity as of Jan. 1 of year, production and throughput are average of preceding 12 months.

Table 3

Worldwide gas processing-plant construction*

Area	1985	1986
United States	31	28
Canada	15	6
Latin America	6	5
Europe	5	8
Middle East/Africa	8	5
Asia-Pacific	9	8
Total	73	60

* Planned, expanding or under construction

Table 4

World gas-production trends (billion cu ft)

	1978	1979	1980	1981	1982	1983	1984	1985	% Change 1985 vs. 1983
United States	19,922.4	19,999.4	20,267.0	19,596.0	18,731.0	16,581.0	18,068.0	17,304.0	−4.2
Western Europe	4,793.7	6,866.6	6,668.7	6,906.6	6,142.1	6,383.5	6,795.4	6,647.2	−2.2
Canada	3,133.1	3,646.5	2,668.3	2,623.0	2,546.1	2,414.1	2,651.8	3,350.6	+2.6
Latin America	2,533.5	2,610.0	3,297.5	3,227.0	3,071.5	3,340.5	3,451.8	3,443.2	−0.2
Middle East	2,604.4	1,624.7	1,221.3	1,542.0	1,799.7	1,633.0	1,533.5	1,723.7	+12.4
Asia-Pacific	1,640.1	1,827.9	1,558.4	2,765.0	1,176.6	2,187.7	2,530.7	3,030.8	+19.8
Africa	1,558.1	1,027.9	884.7	1,947.0	1,168.9	1,143.8	1,629.1	1,764.0	+8.3
Communist bloc and China	17,683.3	19,591.4	21,069.9	19,210.0	20,258.0	21,383.0	23,272.2	25,547.9	+9.4
World total	**53,868.6**	**57,194.4**	**57,635.8**	**57,816.6**	**55,893.9**	**55,066.5**	**59,932.3**	**62,721.4**	**+4.6**

Source: International Petroleum Encyclopedia, 1986, PennWell Publishing Co.

WORLDWIDE GAS PROCESSING

Capacities as of January 1, 1986, and average production

		MMcfd		Production-1,000 gal/day (Average based on the past 12 months)									
Country	No. plants	Gas capacity	Gas through-put	Ethane	Prop.	Isobut.	Normal or unsplit butane	LP-gas mix	Raw NGL mix	Debut. nat. gaso.	Other	Total products
United States												
Alabama	5	167.0	124.0	....	177.1	20.3	133.6	....	17.9	52.3	....	401.2
Alaska	2	82.0	44.4	....	2.9	....	....	....	36.1	....	....	39.0
Arkansas	6	962.5	870.4	....	20.8	5.5	14.4	....	12.8	44.9	6.2	104.6
California	36	1,066.0	731.8	16.8	467.8	9.7	263.7	82.7	407.8	79.2	12.6	1,340.3
Colorado	47	1,004.9	517.7	....	208.1	....	45.8	27.1	694.5	49.1	13.7	1,038.3
Florida	3	799.0	678.8	101.0	152.6	23.0	73.1	....	24.2	80.9	....	454.8
Kansas	28	5,646.0	3,418.0	56.5	698.3	66.6	216.4	2.6	1,063.5	176.9	800.4	2,280.8
Kentucky	3	916.0	651.3	....	....	....	....	....	275.0	....	206.0	481.0
Louisiana	94	20,366.4	10,758.5	887.0	946.1	307.6	308.3	31.1	6,204.0	722.5	678.6	10,085.2
Michigan	26	4,734.9	1,589.3	....	97.5	....	101.9	....	686.1	18.6	59.7	963.8
Mississippi	6	995.0	422.9	....	9.5	....	9.2	....	33.7	3.1	....	55.5
Montana	9	70.0	38.1	....	45.8	1.9	8.5	22.6	29.9	8.6	2.7	120.0
Nebraska	2	13.5	3.1	....	2.8	....	2.0	....	4.0	1.7	....	10.5
New Mexico	34	3,141.6	1,924.1	297.2	197.1	19.8	72.9	48.7	2,731.3	87.1	7.6	3,461.7
North Dakota	10	284.3	197.8	75.2	139.0	....	93.2	12.2	121.2	83.1	13.7	537.6
Oklahoma	108	4,989.8	2,898.2	414.7	763.8	131.2	267.7	274.8	3,272.1	291.4	276.5	5,692.2
Texas	384	19,630.8	12,116.4	3,084.7	3,281.1	469.7	1,460.7	818.7	13,358.0	2,075.2	2,000.5	26,548.6
Utah	11	531.5	259.5	....	111.1	....	28.5	....	157.0	44.3	....	340.9
West Virginia	7	430.0	320.6	233.1	136.1	23.8	44.8	73.0	281.6	2.0	....	794.4
Wyoming	41	1,897.9	1,188.9	1.1	351.9	3.7	210.7	160.9	424.1	277.2	198.1	1,627.7
Total U.S.	**862**	**67,729.1**	**38,753.8**	**5,167.3**	**7,809.4**	**1,082.8**	**3,355.4**	**1,554.4**	**29,834.8**	**4,098.1**	**3,475.9**	**56,378.1**
Abu Dhabi	5	2,498.0	1,551.8	....	357.2	288.8	20.2	....	....	203.9	309.2	1,179.3
Algeria	4	5,335.2	4,268.2	....	....	....	....	632.8	....	....	5,449.2	6,082.0
Argentina	11	1,715.9	1,428.8	545.0	500.9	....	349.1	....	....	306.7	....	1,701.7
Australia	5	2,070.0	1,180.0	414.0	974.0	....	487.0	....	941.0	2,236.0	1,232.0	6,284.0
Austria	2	5.7	3.9	....	....	....	....	....	....	....	....	....
Bahrain	1	143.0	110.0	....	108.4	....	91.5	....	....	135.5	....	335.4
Bangladesh	8	460.0	80.0	....	....	....	....	....	....	1.3	14.9	16.2
Bolivia	2	474.0	380.0	....	....	....	....	....	32.6	....	....	32.6
Brazil	6	369.4	309.2	....	....	....	....	399.7	222.4	89.6	....	711.7
Brunei	2	998.0	823.0	....	12.5	....	....	....	82.1	225.0	....	319.6
Canada												
Alberta	377	20,286.5	11,417.6	4,576.7	2,018.9	266.9	953.6	925.0	4,219.5	3,822.0	259.9	17,042.5
British Columbia	11	2,166.4	922.1	....	48.3	....	54.5	....	....	86.5	....	189.3
Northwest Territories	2	196.0	16.7	....	....	....	....	....	....	....	....	....
Saskatchewan	13	159.0	91.4	39.2	....	....	....	....	81.4	....	29.3	149.9
Chile	2	470.0	430.0	....	209.0	....	132.0	....	28.0	83.0	....	452.0
China, Taiwan	4	271.0	110.4	39.1	32.2	1.5	18.9	....	3.0	15.6	....	110.3
Colombia	2	125.0	121.5	82.0	45.3	....	11.7	....	....	18.9	....	157.9
Denmark	1	450.0	200.0	....	....	....	....	....	....	....	0.9	0.9
Dominican Republic	1	....	....	....	....	....	....	....	....	....	277.2	277.2
Dubai	1	330.0	312.0	....	....	....	....	....	....	....	1,016.4	1,016.4
Ecuador	2	....	....	....	....	....	....	2.4	9.1	....	....	11.5
Egypt	7	969.0	872.0	....	....	188.5	....	125.0	....	....	808.7	1,122.2
France	1	777.0	749.0	....	163.0	....	156.0	....	....	347.0	....	666.0
Germany	5	542.9	451.0	....	....	....	....	....	....	....	....	....
Greece	1	10.5	9.5	....	....	....	....	....	85.0	....	....	85.0
Hungary	12	855.9	462.8	....	97.0	13.5	84.0	91.0	216.2	108.0	458.7	1,068.4
Indonesia	10	884.3	620.4	....	526.7	....	....	51.6	465.2	175.1	227.9	1,446.5
Italy	16	7,101.0	4,909.0	....	....	....	....	29.6	175.0	15.4	....	220.0
Kuwait	1	1,680.0	360.0	....	834.0	....	548.0	....	....	305.0	85.0	1,772.0
Libya	7	1,851.0	1,227.0	....	....	....	....	37.8	5,577.0	....	551.0	6,165.8
Malaysia	2	282.0	72.0	....	130.0	....	112.0	....	....	164.0	....	406.0
Mexico	10	4,334.0	3,249.0	3,487.7	5,657.2	3.5	153.0	385.4	....	316.5	14.0	10,017.3
Netherlands	1	440.0	100.0	....	....	....	....	....	....	....	4.2	4.2
New Zealand	1	96.0	59.0	....	23.6	....	3.2	....	....	7.9	....	34.7
Norway	2	950.0	116.0	....	100.7	7.6	24.9	....	222.6	12.6	....	368.4
Pakistan	5	950.0	810.9	....	....	....	....	47.0	....	7.6	7.8	62.4
Peru	2	70.0	37.0	....	2.1	....	0.8	7.2	25.4	....	3.2	38.7
Qatar	2	580.0	313.9	....	504.1	....	334.4	....	....	257.5	....	1,096.0
Saudi Arabia	5	4,300.0	....	....	....	....	....	....	1,176.0	....	....	1,176.0
Sharjah	1	580.0	500.0	....	....	....	....	....	....	....	2,520.0	2,520.0
United Kingdom	7	2,648.2	1,508.0	....	332.0	....	291.0	....	180.6	1,748.5	75.4	2,627.5
Venezuela	17	4,251.0	3,348.0	....	394.5	137.2	132.7	440.8	1,222.4	239.2	....	2,566.8
Total, outside U.S.	**577**	**72,675.9**	**43,531.1**	**9,183.7**	**13,071.6**	**907.5**	**3,958.5**	**3,175.3**	**14,964.5**	**10,928.3**	**13,344.9**	**69,534.3**

Guide to EOR project tabulations

Table A: More EOR projects planned for U.S.
Table B: Worldwide projects planned (Canada, So. America, etc.)
Table C: EOR efforts in Canada increasing
Table D: Latin American activity
Table E: Other foreign activity
Table F: Steam EOR still leads U.S.
Table G: Chemical floods make largest gains in U.S.
Table H: CO_2 and other gas projects in U.S.
Table I: Combustion methods underway in U.S.

ABBREVIATIONS

Formation type
S = Sandstone
LS = Limestone
Dolo. = Dolomite
Congl. = Conglomerate

Project maturity
JS = Just started
HF = Half finished
NC = Nearing completion
Term. = Terminated

Previous production
Prim. = Primary
WF = Waterflood

Project evaluation
TETT = Too early to tell
Prom. = Promising
Succ. = Successful
Disc. = Discouraging
NE = Not evaluated

Table 3

Active U.S. EOR market share

	Total projects	Daily EOR production
Thermal	39.3	79.3
Chemical	40.3	2.8
Gases	20.4	17.9

U.S. EOR production

	b/d				Change from 1984, %
	1980	1982	1984	1986	
Thermal					
Steam	243,477	288,396	358,115	468,692	+ 30.9
Combustion in situ	12,133	10,228	6,445	10,272	+ 59.4
Hot water	—	—	—	705	0.0
Total thermal	**255,610**	**298,624**	**364,560**	**479,669**	**+ 31.6**
Chemical					
Micellar-polymer	930	902	2,832	1,403	− 50.5
Polymer	924	2,927	10,232	15,313	+ 49.7
Caustic	550	580	334	185	− 44.6
Total chemical	**2,404**	**4,409**	**13,398**	**16,901**	**+ 26.2**
Gases					
Hydrocarbon miscible	—	—	14,439	33,767	+133.9
CO_2 miscible	21,532	21,953	31,300	28,440	− 9.2
CO_2 immiscible	—	—	702	1,349	+ 92.2
Nitrogen	—	—	7,170	18,510	+158.2
Flue gas (miscible and immiscible)	—	—	29,400	26,150	− 11.1
Total gases	**74,807**	**71,915**	**83,011**	**108,216**	**+ 30.4**
Other					
Carbonated waterflood	—	—	—	—	
Grand total	**332,821**	**374,948**	**460,969**	**604,786**	**+ 31.2**

Table 2

Active U.S. EOR projects

	Number of projects								Change from 1984, %
	1971	1974	1976	1978	1980	1982	1984	1986	
Thermal									
Steam	53	64	85	99	133	118	133	181	+36.1
Combustion in situ	38	19	21	16	17	21	18	17	− 5.6
Hot water	—	—	—	—	—	—	—	3	—
Total thermal	**91**	**83**	**106**	**115**	**150**	**139**	**151**	**201**	**+33.1**
Chemical									
Micellar-polymer	5	7	13	22	14	20	21	20	− 4.8
Polymer	14	9	14	21	22	55	106	178	+67.9
Caustic	—	2	1	3	6	10	11	8	−27.3
Total chemical	**19**	**18**	**28**	**46**	**42**	**85**	**138**	**206**	**+49.3**
Gases									
Hydrocarbon miscible	21	12	15	15	9	12	16	26	+62.5
CO_2 miscible	1	6	9	14	17	28	40	38	− 5.0
CO_2 immiscible	—	—	—	—	—	—	18	28	+55.6
Nitrogen	—	—	—	—	—	—	7	9	+28.6
Flue gas (miscible and immiscible)					8	10	3	3	—
Total gases	—	—	—	—	**34**	**50**	**84**	**104**	**+23.8**
Other									
Carbonated waterflood								1	—
Grand Total					**226**	**274**	**373**	**512**	**+37.3**

More EOR projects planned for U.S.

Operator	Type project	Field	State	Size, acres	Pay zone	Depth, ft	Gravity, °API	Target date
Amoco	CO_2 miscible	Levelland	Tex.	16,340	San Andres	4,900	30	87
Amoco	CO_2 miscible	Anton Irish	Tex.	8,545	Clearfork	5,900	28	87
Amoco	CO_2 miscible	Slaughter	Tex.	2,000	San Andres	4,950	31	87
Amoco	CO_2 miscible	Wertz	Wyo.	1,600	Tensleep	6,200	—	86
Amoco	Polymer	Slaughter	Tex.	3,500	San Andres	4,950	31	86
ARCO	CO_2	Wasson-Willard	Tex.	8,000	San Andres	5,100	32	2/86
ARCO	Polymer	Dundee Healdton Unit	Okla.	660	Penn	1,000	31	86
Chevron	Steam	Midway-Sunset	Calif.	27	Tulare	1,200	11	5/86
Chevron	Steam	Coalinga Sec. 31A	Calif.	100	Temblor	900	14	1/87
Chevron	CO_2 miscible	Rangely	Colo.	19,000	Weber	6,500	34	6/86
Cities Service	Steam	South Kern Front	Calif.	80	Etchegoin chanac	1,500	14	1/88
Cities Service	Steam	North Kern Front	Calif.	342	Etchegoin	1,300-1,500	14	1/87
Citronelle Unit	Polymer	Citronelle	Ala.	—	Rodessa	10,600	42-45	1/86
Citronelle Unit	Immiscible CO_2	Citronelle	Ala.	—	Rodessa	10,600	42-45	1/86
Conoco	Polymer	San Miguelito	Calif.	436	First & Second Grubb	6,100	28	5/86
Conoco	Polymer	Round Top	Tex.	3,121	Palo Pinto Reef	4,760	40.5	6/86
Conoco	CO_2	Maljamar	N.M.	3,920	Grayburg/San Andres	3,665	36	7/87
Conoco	CO_2	W. Sussex	Wyo.	1,740	Shannon	3,040	38	7/88
Conoco	CO_2	E. Huntley	Tex.	1,308	San Andres	3,180	36	7/87
Conoco	CO_2	McCallum	Colo.	813	Pierre "B"	800	28	8/86
Conoco	Steam	Loco	Okla.	Variable	Multi-zones	300-1,000	19-23	7/86
Mitchell	Polymer	Alba	Tex.	512	Sub-Clarksville	4,010	15.5	6/86
Mobil	CO_2	Postle	Okla.	23,000	Morrow	6,200	40	1989
Mobil	Polymer	Stephens Co.	Tex.	4,257	Caddo	3,200	40	1986
Mobil	Polymer	Stephens Co.	Tex.	2,384	Caddo	3,100	40	1986
Santa Fe Energy	Polymer	Candy Draw	Wyo.	500-600	Minnelusa	7,300	26	1986
Santa Fe Energy	Combustion	Midway-Sunset	Calif.	600	Tulare	1,250	11.5	86
Santa Fe Energy	Steam	Midway-Sunset	Calif.	1,000	Tulare	1,250	11.5	8/86
Santa Fe Energy	Steam	Brea Olinda	Calif.	35	Anaheim	900	13	1/1/87
Shell	Steam	Arroyo Grande	Calif.	254	Upper M6	- 400 ss	15	3/86
Shell	Steam	Olinda	Calif.	45	B8-B16	3,000	20	10/86
Shell	Steam	Cat Canyon	Calif.	2½	Brooks	3,300	10	1/86
Shell	Alkaline	White Castle	La.	3	Q Sand	5,700	32	3/86
Shell	CO_2	Olive	Miss.	1,000	Lower Tuscaloosa	10,500	39	3/86
Shell	CO_2	West Mallalieu	Miss.	5,760	Lower Tuscaloosa	10,365	38	5/86
Shell	CO_2	Weeks Island	La.	971	M thru S sds.	11,000-14,000	33	1/87
Shell	CO_2	White Castle	La.	200	NW Sand	12,000	34	3/86
Shell	Polymer	Monahans	Tex.	1,060	Queen	3,200	32	1/86
Shell	Polymer	Harper	Tex.	4,240	San Andres	4,000	37	87
Shell	Polymer	McElroy	Tex.	520	Grayburg	2,900	32	8/86
Shell	Polymer	Monahans	Tex.	4,800	Clearfork	4,700	32	4/86
Shell	Polymer	Bedford	Tex.	1,000	Devonian	9,000	32	87
Shell	Polymer	Dune	Tex.	200	San Andres	3,450	29	87
Shell	Polymer	Flanagan	Tex.	5,400	Clearfork	6,400	35	87
Shell	Polymer	Jordan	Tex.	3,820	San Andres	3,400	36	87
Shell	Polymer	TXL North	Tex.	8,440	Tubb	5,400	37	87
Tenneco	Steam	Kern River	Calif.	8	Kern River	1,200	13	1986
Tenneco	Steam	Midway-Sunset	Calif.	8	U. Monarch	1,200	12	1986
Tenneco	Steam	Placerita	Calif.	300	Kraft	1,500	12	1986
Texaco	Steam	San Ardo	Calif.	40	Lombardi	1,900	11	1/87
Texaco	Steam	San Ardo	Calif.	100	Aurignac	2,200	13	1987
Texaco	Steam	Midway	Calif.	5	Tulare	1,300	12	1/87
Texaco	Steam	Midway	Calif.	30	Potter	1,650	12-13	1987
Texaco	Steam	Coalinga	Calif.	50	Etchegoin Temblor	500-800	13	1986
Texaco	Steam	Wilcox	Calif.	16.5	Basal Etchegoin	2,400	12.3	1987
Texaco	Steam	Wilcox	Calif.	16.5	Basal Etchegoin	2,400	12.3	1987
Texaco	Polymer	Sho-Vel-Tum	Okla.	1,128	Tussy	3,000	43	1986
Texaco	Polymer	Sho-Vel-Tum	Okla.	130	Permian	250-1,150	30	1986
Texaco	Polymer	Sho-Vel-Tum	Okla.	420	Permian	1,000	—	1986
Texaco	Polymer	Sho-Vel-Tum	Okla.	300	Humphreys	3,500	21	1986
Texaco	Polymer	Cahoj	Kan.	2,880	Lansing-KC	3,900	34	1986
Texaco	Polymer	EMOR	Kan.	1,120	Toronto-Lansing KC	4,000	38	1986
Texaco	Polymer	Cushing	Okla.	680	Bartlesville	2,800	40	1986
Texaco	Polymer	Blue Buttes	NO	12,777	Madison	9,200	41.6	7/86
Texaco	Polymer	Big Wall	Mt.	404	Tyler	2,960	30	3/86
Texaco	Polymer	Bowes	Mt.	2,680	Sawtooth	3,460	19	6/86

Table A

Operator	Type project	Field	State	Size, acres	Pay zone	Depth, ft	Gravity, °API	Target date
Texaco	Polymer	Wilson Creek	Co.	7,077	Morrison	6,200	43	6/86
Texaco	Polymer	Ismay Flodine Park Unit	Utah	5416	Ismay	5,800	46.3	9/86
Texaco	Polymer	Levelland	Tex.	700	San Andres	4,820	30.0	3/1/86
Texaco	Polymer	Levelland	Tex.	2,437	San Andres	4,760	29.7	3/1/86
Texaco	Polymer	Levelland	Tex.	1,233	San Andres	4,720	30.5	7/1/86
Texaco	Polymer	Slaughter	Tex.	340	San Andres	5,000	31	11/86
Texaco	Polymer	W. Pachuta Creek	Miss.	1,596	Smackover	13,000	37.5	2/86
Texaco	Immiscible CO$_2$	West Delta 109	La.	85	9,000 Foot	8,700	38.3	4/86
Texaco	Immiscible CO$_2$	West Delta 109	La.	100	9,200 Foot	9,575	38.1	4/86
Texaco	Immiscible CO$_2$	West Delta 109	La.	30	9,800-Foot	10,500	37.1	4/86
Texaco	Immiscible CO$_2$	West Delta 109	La.	87	10,000-Foot	10,000	37.4	4/86
Texaco	Immiscible CO$_2$	West Delta 109	La.	72	10,500-Foot	10,500	39.0	5/86
Texaco	Immiscible CO$_2$	West Delta 109	La.	17	10,500-Foot	9,800	37.5	5/86
Texaco	Immiscible CO$_2$	West Delta 109	La.	36	10,800-Foot	9,950	38.3	5/86
Texaco	Immiscible CO$_2$	West Delta 109	La.	28	12,500-Foot	12,400	31.3	5/86
Texaco	Immiscible CO$_2$	Vermilion 380	La.	133	Y-1	5,200	40.5	6/86
Texaco	Immiscible CO$_2$	Vermilion 380	La.	150	Y-1	5,500	40.0	6/86
Texaco	Immiscible CO$_2$	Vermilion 380	La.	162	Y-3 A	6,000	33.5	6/86
Texaco	Immiscible CO$_2$	Lafitte	La.	300	6,500-Foot	6,500	25.9	1/87
Texaco	Immiscible CO$_2$	Lafitte	La.	100	4,200-Foot	4,350	28.0	1/87
Texaco	Immiscible CO$_2$	Lafitte	La.	200	4,050-Foot	4,000	21.5	2/87
Texaco	Immiscible CO$_2$	Golden Meadow	La.	150	10,000-Foot	10,100	37.0	2/87
Texaco	Immiscible CO$_2$	Bayou Fer Blanc	La.	175	McGowan	13,500	39.0	2/87
Texaco	Immiscible CO$_2$	Lake Pelto	La.	60	38 Sand	8,400	31.0	3/87
Texaco	Immiscible CO$_2$	Delacroix	La.	600	7,900-Foot	7,900	38.0	3/87
Texaco	Immiscible CO$_2$	Bay De Chene	La.	175	7,500-Foot	7,500	34.0	3/87
Texaco	Immiscible CO$_2$	Bonnet Carre	La.	1,014	9,400-Foot	9,400	37.0	2/86
Texaco	Immiscible CO$_2$	Boutte	La.	353	Simoncaux #1	10,270	37.0	2/86
Texaco	Immiscible CO$_2$	West Nancy	La.	731	Smackover	13,800	38.2	6/86
Texaco	Immiscible CO$_2$	Leeville	La.	17	7,900-Foot	7,200	36.1	4/86
Texaco	Immiscible CO$_2$	Caillou Island	La.	95	15,300-Foot	14,000	31.7	4/86
Texaco	Immiscible CO$_2$	Caillou Isand	La.	103	Upper 70	12,900	33.6	5/86
Texaco	Immiscible CO$_2$	Caillou Isand	La.	300	Middle 70	12,800	33.5	5/86
Texaco	Immiscible CO$_2$	Paradis	La.	1,500	Main Pay	9,800	35.0	6/86
Unocal	Polymer	Brown	Tex.	1,900	Glorieta	6,000	32.5	1/87
Unocal	Polymer	Beaver Creek	Michigan	3,560	Richfield	4,300	43	1/1/86
Unocal	Polymer	SCCBSU	Montana	6,400	Cut Bank	2,900	38	1986
Unocal	Steam	Brea	Calif.	150	Pliocene	2,500	16	Mid 1986
Unocal	Steam	Oakridge	Calif.	541	Miocene	2,600	21	Mid 1986
Unocal	Steam	Cymric	Calif.	150	Antelope Shale	2,400	13	1/86
Unocal	Steam	Midway-Sunset	Calif.	80	Tulare	1,900	14	1/15/86
M. H. Whittier Corp.	Steam	Coalinga	Calif.	80	Temblor	1,200 ±	13	9/85

Worldwide projects planned

Table B

Country/state	Operator	Type project	Field	Size, acres	Pay zone	Depth, ft	Gravity, °API	Target date
Canada/Alta.	Chevron Canada	Polymer	Taber	480	Mannville	3,200	18	10/86
Canada/Alta.	Chevron Canada	HC Misc.	Acheson	1,200	D3A	5,100	35	6/87
Canada/Alta.	Chevron Canada	HC Misc.	Mitsue	17,000	Gilwood	5,000	41	5/86
Canada/Alta.	Chevron Canada	HC Misc.	Mitsue	13,000	Gilwood	5,000	41	5/87
Canada/Alta.	Chevron Canada	HC Misc.	Kaybob BHLA	16,000	Beaver Hill Lake	10,000	36	9/87
Canada/Alta.	Westergrowth	Immiscible CO_2	Little Bow	960	Glauconite	3,500	25	1986
Canada/Alta.	Vikor	Miscible CO_2	Joffre	3,500	Viking	5,000	42	1986
Canada/Alta.	Mobil	Steam	Cold Lake	160	Grand Rapids	1,200	11	Late 1987
Canada/Sask.	Mobil	Steam	Celtic	160	Gen. Petroleum	1,650	12	1987
Canada/Sask.	Mobil	Steam	Celtic	320	Waseca	1,500	13	1987-88
Canada/Alta.	—	Steam	Manatoken	120	Lower Grand Rapids "B"	1,204	10.5	1986
Canada/Alta.	—	Steam	Lindbergh	—	Lower Grand Rapids "B"	1,607	11.0	1987
Canada/Alta.	—	Combustion	Morgan	40	Lloydminster	1,870	12	1986
Canada/Sask.	Saskoil	Combustion	Senlac	20	Lloyd	2,600	15	11/86
Canada/Sask.	Aberford Resources Ltd.	Polymer	Rapdan Unit	440	Upper Shaunavon	4,500	23	1-1-86
Canada/Alta.	Texaco Canada Resources	Steam	Frog Lake test	Single well	McLaren	1,480	10-13	1986
Canada/Alta.	Texaco Canada Resources	Steam	Frog Lake	Single well test	Waseca	1,560	10-13	1986
Canada/Alta.	Texaco Canada Resources	Steam	Frog Lake	Single well test	Dina	1,890	10-13	1986
Canada/Alta.	Texaco Canada Resources	Steam	Hanging Stone	Single well test	McMurray	1,000	N/A	1986
Canada/Alberta	Shell Canada Ltd.	CO_2 misc.	Manyberries	1,680	Cretaceous	3,400	38	1987
Canada/Alberta	Shell Canada Ltd.	HC misc.	Simonette	320	LeDuc D-3	12,000	48	1986
Canada/Alberta	Shell Canada Ltd.	HC misc.	Virginia Hills	6,080	Beaverhill Lake	9,200	38	1987
Canada/Alberta	Shell Canada Ltd.	CO_2 misc.	Harmatton East	2,000	Rundil	9,000	38	1987
Germany (Lower Saxony)	Wintershall AG	Steam	Emlichheim	41.5	Valenginian	2,460	24.5	1987
Germany (Lower Saxony)	Wintershall AG	Steam	Emlichheim	70.0	Valenginian	2,550	24.5	1987
Germany (Lower Saxony)	Wintershall AG	Steam	Emlichheim	28.5	Valenginian	2,460	24.5	1987
Germany (Lower Saxony)	Wintershall AG	Steam	Emlichheim	64.0	Valenginian	2,550	24.5	1987
Indonesia	Total	Micellar-Polymer	Handil	4	—	4,500	33	Early 1987
Italy	Agip S.p.A.	Steam	Tocco Casauria	5	Tocco	500	18-25	1986
Trinidad	Trintoc	Steam	Area IV	92	Cruise 'E'	1,800	18.0	1/86
Trinidad	Trintoc	Steam	Parrylands Expansion	30.0	Forest	1,100	11.5	10/86

EOR efforts in Canada

Operator	Field	Province	Type project	Start date	Area, acres	Number wells Prod.	Inj.	Pay zone	Formation type	Porosity, %	Permeability, md.	Depth, ft
Amoco	Bigoray "B" Pool	Alta.	HC miscible	1980	480	3	1	Nisku D-2	LS	5	130	7,500
Amoco	Rainbow	Alta.	HC miscible	1972	640	4	2	Keg River L.S.	LS	5	163	6,300
Amoco	South Swan Hills	Alta.	HC miscible	1973	28,480	164	47	Beaverhill Lake	LS	8	49	8,500
Amoco	Elk Point	Alta.	Steam	1983	—	—	—	L. Cummings	—	30	5,000	2,000
Amoco	Ante Creek	Alta.	HC miscible	1968	6,380	14	6	Beaverhill Lake	LS	6	9	11,000
BP	Wolf Lake	Alta.	Steam	3/8/85	524	187	187	Clearwater	S	31	3,000	1,398
BP	Phase A Pilot	Alta.	Combustion	1976	40	18	6	Clearwater	S	30	3,000	1,476
BP	Wolf Lake	Alta.	Steam	10/82	—	1	1	Lower Grand Rapids	S	33	3,000	1,400
BP	Wolf Lake	Alta.	Steam	1985	—	2	2	Lower Grand Rapids	S	33	3,000	1,330
Chevron Canada	W. Pembina Nisku A	Alta.	HC Misc.	8/81	160	1	1	Nisku	LS	10	207	9,500
Chevron Canada	W. Pembina Nisku D	Alta.	HC Misc.	5/81	160	1	1	Nisku	LS	10	240	10,200
Chevron Canada	Pembina Nisku A	Alta.	HC Misc.	7/85	306	1	1	Nisku	LS	7.6	708	10,000
Chevron Canada	W. Pembina Nisku C	Alta.	HC Misc.	4/84	148	1	1	Nisku	LS	6.1	1,100	9,800
Chevron Canada	Brazeau River Nisku B	Alta.	HC Misc.	9/84	227	1	1	Nisku	LS	6.3	283	9,960
Chevron Canada	Pembina Nisku D	Alta.	HC Misc.	11/85	790	3	1	Nisku	LS	12.3	1,875	8,400
Chevron Canada	Bigoray Nisku F	Alta.	HC Misc.	3/86	—	1	1	Nisku	LS	11	3,866	7,800
Chevron Canada	Mitsue	Alta.	HC Misc.	5/85	17,280	71	27	Gilwood	S	13.4	282	5,000
Chevron Canada	Taber Mannville D Unit No. 2	Alta.	Polymer	3/74	1,160	23	6	Mannville	S	19.4	132	3,200
Husky	Beaverdam	—	Steam	12/85	240	—	—	Rex	S	33	3,000	1,400
Husky	Tengleflags	—	Combustion	2/85	1,120	19	3	General Petroleum	S	33	4,000	1,700
Husky	Golden Lake	Sask.	Combustion	1969	600	46	5	Sparky	Unconsolidated Sandstone	31	1,300	1,640
Husky	Pikes Peak	Sask.	Steam	1981	360	56	1	Waseca	Unconsolidated Sandstone	37	5,000-10,000	1,640
Husky	Westhazel	Sask.	Steam	1985	—	2	2	GP	S	33	5,000	1,575
Husky	Westhazel	Sask.	Steam	1985	—	2	2	GP	S	33	5,000	1,575
Husky	Cold Lake	Alta.	Steam	1983	—	12	12	Clearwater	S	33	4,000	1,500
Husky	Aberfeldy	Sask.	Steam	1979	160	56	15	Sparky	S	30	1,700	1,700
Husky	Frog Lake	Alta.	Steam	8/85	20	4	—	Colony	S	33	2,500	1,400
Husky	Morgan	Alta.	Steam	9/84	25	5	—	Lloyd	S	30	1,500	1,800
Husky	Golden Lake Waseca	Sask.	Combustion	10/82	200	17	2	Waseca	S	30	2,000	1,550

Table C

Reservoir oil			Previous prod.	Residual oil saturation, %		Project maturity	Total prod., bo/d	Enhanced prod., bo/d	Project eval.	Profit
°API	cp	@ °F		Start	End					
40	1.0	160	Prim.	78	—	JS	1,550	1,550	Succ.	—
41	0.4	180	Pres. Maint.	85	—	HF	2,510	2,510	Succ.	—
38	0.4	225	Prim./WF	35	—	HF	26,160	26,160	Succ.	—
11	—	75	Prim.	—	—	JS	5,000	—	Prom.	—
40	0.14	233	Prim.	90	—	HF	1,340	1,340	Succ.	—
10	10,000	60	—	65	—	JS	6,920	—	Succ.	Yes
10	10,000	60	—	65	—	HF	—	—	Succ.	No
10	45,000	60	—	78	—	NC	—	—	Succ.	No.
10	45,000	60	—	75	—	JS	—	—	TETT	No
47	0.25	228	Prim.	90	25	HF	3,700	1,700	Prom.	Yes
46	0.18	218	Prim.	89	30	HF	2,866	1,230	Prom.	Yes
44	0.34	210	WF	68	30	JS	3,700	1,000	TETT	Yes
42	0.7	218	WF	77	20	JS	5,956	2,160	TETT	Yes
47	0.5	212	WF	78	20	JS	3,425	1,200	TETT	Yes
37	0.86	176	WF	68	25	JS	6,434	1,700	TETT	Yes
36.5	1	175	—	65	22	JS	3,960	1,150	TETT	Yes
41	0.65	147	WF	30	19	JS	6,300	700	TETT	Yes
18	50	95	Prim.	75	63	Termiol 35	300	300	Disc.	—
—	—	70	—	80	—	JS	—	—	TETT	TETT
14.5	4,000	74	Prim.	77	—	JS	—	—	Prom.	—
12-13	3,500	70	—	21	14	NC	620	520	Prom.	No
12	15,000	70	—	32	23	HF	3,700	3,700	Succ.	Yes
13.6	11,000	70	Prim.	82	—	JS	60	60	TETT	—
13.6	11,000	70	Prim.	82	—	JS	60	60	TETT	—
10.2	130,000	60	—	65	—	JS	400	400	Prom.	—
17	—	—	Prim/WF	71	43	HF	1,200	1,200	Prom.	No
12	100,000	60	—	80	65	JS	60	60	TETT	TETT
12	120,000	70	—	75	60	JS	125	125	Prom.	—
16.5	1,300	70	Prim.	75	70	NC	—	—	Prom.	No

EOR efforts in Canada .... continued

Operator	Field	Province	Type project	Start date	Area, acres	Number wells Prod.	Inj.	Pay zone	Formation type	Porosity, %	Permeability, md.	Depth, ft
Murphy	Evehill	Sask.	Steam	9/81	180	16	9	Cummings Waseca	S	34	6,000	2,450
Murphy	Cold Lake	Alta.	Steam	8/74	20	17	—	Lower Grand	S	33	2,500	1,620
Norcen	Provost	—	Steam	1985	20	9	—	McLaren	S	27-30	4,000	2,430
Norcen	Provost	—	Combustion	1975	105	24	7	McLaren	S	29	4,000	2,450
Pancanadian	Countess Upper Mannville "B" Pool	Alta.	Combustion	1/83	40	4	2	Glauconite S.S.	S	25	800	3,550
Pancanadian	Horsefly Lake	Alta.	Polymer	10/83	40	5	4	Lower Mannville	S	20	100	3,200
Petro-Canada	Caroline	Alta.	HC Miscible	9-84	12,620	26	11	Cardium	S	10	12	8,200
Petro-Canada	Athabasca	Alta.	Steam	10/85	—	1	1	McMurray	S	32	1,350	850
Petro-Canada	Athabasca	Alta.	Steam	12/84	—	1	1	McMurray	S	32	1,350	850
Mobil	Celtic	Sask.	Cyclic Steam Injection	4/85	23	5	—	General Petro.	S	35	2,000	1,576
Mobil	Celtic	Sask.	Cyclic Steam Injection	10/80	125	20	5	Waseca	S	35	1,000	1,500
Mobil	Kitscoty	Alberta	Combustion	1977	1,040	82	9	Sparky	S	34	2,000	1,800
Mobil	Silverdale	Alberta	Combustion	1977	1,280	73	18	Sparky	S	31	2,000	1,900
Mobil	Fosterton Northwest	Sask.	Combustion	3/77	200	6	2	Roseray	S	29	958	3,100
Mobil	Battrum Field	Sask.	Combustion	10/66	4,720	87	5	Battrum Roseray	S	26	1,265	2,900
Mobil	Battrum Field	Sask.	Combustion	11/65	680	13	2	Roseray	S	27	930	2,900
Mobil	Battrum Field	Sask.	Combustion	8/67	2,080	26	2	Battrum & Roseray	S	25	930	2,900
Mobil	Rainbow	—	Hydrocarbon Miscible	9/72	360	9	3	Keg River	Dolo LS	8.6	7,000	500
Mobil	Rainbow	—	Hydro. Misc.	7/83	110	4	1	Keg River	Dolo LS	9.8	1,000-4,000	1,200
Mobil	Cold Lake	Alberta	Steam	1982	—	—	—	Lower Grand Rapids	S	35	1,000	1,200
Shell Canada Ltd.	Midale	Sask.	Co_2 Misc.	10/85	5	3	4	Midale	LS/dol	16	3	4,600
Petro-Canada	Brazeau River	Alta.	HC miscible	9/80	640	2	1	Nisku	LS	10	396	10,215
Petro-Canada	Brazeau River	Alta.	HC miscible	11/80	640	2	1	Nisku	LS	10	35	10,544
Petro-Canada	Brazeau River	Alta.	HC miscible	9/81	640	3	1	Nisku	LS	7	50	10,091
Texaco-Canada	Wizard Lake	Alta.	HC miscible	1969	3,725	43	12	Leduc D-3A	Dolo.	9.55	1,375	6,500
Texaco-Canada	Pembina 'G' Pool	Alta.	HC miscible	1981	328	3	1	Nisku	Dolo.	8.2	900	9,439
Texaco-Canada	Pembina 'K' Pool	Alta.	HC miscible	1980	143	2	1	Nisku	Dolo.	10.4	2,020	9,500
Texaco-Canada	Pembina 'L' Pool	Alta.	HC miscible	1985	376	4	2	Nisku	Dolo.	11	1,060	9,410
Texaco-Canada	Pembina 'M' Pool	Alta.	HC miscible	1983	475	2	1	Nisku	Dolo.	8.9	540	9,350
Texaco-Canada	Pembina 'O' Pool	Alta.	HC miscible	1983	210	1	1	Nisku	Dolo.	11.6	3,100	9,236
Texaco-Canada	Pembina 'P' Pool	Alta.	HC miscible	1983	370	3	1	Nisku	Dolo.	10.6	2,400	9,432
Texaco-Canada	Pembina 'Q' Pool	Alta.	HC miscible	1985	316	2	1	Nisku	Dolo.	9	1,970	9,463
Texaco-Canada	Lone Rock	Sask.	Steam	11/84	45	13	3	Sparky	S	34.4	2,800	1,900
Texaco-Canada	Ft. McMurray	Alta.	Steam	1973	10	12	5	Wabiskaw-McMurray	S	32-35	2,000-3,000	250
Texaco-Canada	Ft. McMurray	Alta.	Steam	1976	3.75	6	7	Wabiskaw-McMurray	S	32-35	2,000-3,000	250
Texaco-Canada	Ft. McMurray	Alta.	Steam	1981	15.3	2	1	Wabiskaw-McMurray	S	25-35	2,000-3,000	250
Vikor	Joffre Viking	Alta.	CO_2 Miscible	6/1/83	320	6	6	Viking	S	13	500	4,900
Westgrowth Petroleum	Retlaw Mannville 'V' Pool	Alta.	CO_2 Miscible	11/1/83	2,800	25	7	Glauconite	S	18	50	2,800

Latin America activity

Country	State/Area	Operator	Field	Start date	Area, acres	Number wells Prod.	Inj.	Pay zone	Formation type	Porosity, %	Permeability, md	Depth, ft
STEAM												
Trinidad	—	Trintoc	Point Fortin Central	5/85	30	6	—	Forest	S	30.0	500.0	1,000-1,200
Trinidad	—	Trintoc	Point Fortin Central	7/82	30	12	6	Forest	S	30	600	1,000-1,200
Trinidad	—	Trintoc	Forest Reserve	7/77	133	70	16	Forest Sand	S	33	200	1,000
Venezuela	Zulia	Maraven S.A.	East Tia Juana	1/11/74	1,830	135	21	L.L.	S	38.1	780	1,597
Venezuela	Zulia	Maraven S.A.	Main Tia Juana	6/68	141	15	7	L.L.	S	33	N.D.	1,250
Venezuela	Zulia	Maraven S.A.	Main Tia Juana	10/63	873	82	—	L.L.	S	38.1	N.D.	1,750
Venezuela	Zulia	Maraven S.A.	Main Tia Juana	6/66	141	15	—	L.L.	S	38.1	N.D.	1,250
Venezuela	Zulia	Maraven S.A.	Main Tia Juana	10/67	222	197	—	L.L.	S	38.1	750	1,746
Venezuela	Zulia	Maraven S.A.	Main Tia Juana	7/67	1,500	134	—	L.L.	S	38.1	750	1,400
Venezuela	Zulia	Maraven S.A.	Main Tia Juana	7/67	1,271	114	—	L.L.	S	38.1	675	1,220
Venezuela	Zulia	Maraven S.A.	East Tia Juana	9/64	415	36	—	L.L.	S	38.1	3,000	1,250
Venezuela	Zulia	Maraven S.A.	East Tia Juana	4/59	339	33	—	L.L.	S	38.1	N.D.	1,500
Venezuela	Zulia	Maraven S.A.	East Tia Juana	5/68	2,667	232	—	L.L.	S	38.1	N.D.	1,200
Venezuela	Zulia	Maraven S.A.	East Tia Juana	8/68	2,629	224	—	L.L.	S	38.1	N.D.	1,000
Venezuela	Zulia	Maraven S.A.	East Tia Juana	3/69	1,773	145	—	L.L.	S	38.1	N.D.	1,700
Venezuela	Zulia	Maraven S.A.	East Tia Juana	12/68	1,956	168	—	L.L.	S	38.1	N.D.	1,250
Venezuela	Zulia	Maraven S.A.	East Tia Juana	2/61	36	7	—	L.L.	S	38	N.D.	1,000
Venezuela	Zulia	Maraven S.A.	East Tia Juana	8/69	415	24	—	L.L.	S	38.1	N.D.	850
Venezuela	Zulia	Maraven S.A.	East Tia Juana	8/69	1,642	131	—	L.L.	S	38.1	N.D.	1,250
Venezuela	Zulia	Maraven S.A.	Lagunillas	11/79	3,101	267	—	L.L.	S	33.7	N.D.	2,615
Venezuela	Zulia	Maraven S.A.	Lagunillas	1/70	3,025	147	—	L.L.	S	33.7	N.D.	2,500
Venezuela	Zulia	Maraven S.A.	Lagunillas	1/70	76	7	—	L.L.	S	33.7	N.D.	2,600
Venezuela	Zulia	Maraven S.A.	Lagunillas	4/65	420	59	—	U.L.H.	S	35	N.D.	2,100
Venezuela	Zulia	Maraven S.A.	Lagunillas	7/67	618	54	—	U.L.H.	S	3[illegible]	N.D.	2,100
Venezuela	Zulia	Maraven S.A.	Lagunillas	8/70	2,114	175	—	U.L.H.	S	35	N.D.	1,725
Venezuela	Zulia	Maraven S.A.	Lagunillas	4/70	2,565	220	—	U.L.H.	S	35	N.D.	1,750
Venezuela	Zulia	Maraven S.A.	Lagunillas	11/80	3,565	299	—	U.L.H.	S	35	N.D.	2,398
Venezuela	Zulia	Maraven S.A.	Bachaquero	8/70	76.7	7	—	Post-Eoceno	S	34.3	N.D.	2,125
Venezuela	Zulia	Maraven S.A.	Bachaquero	8/70	76	7	—	Post-Eoceno	S	34.3	N.D.	1,864
Venezuela	Zulia	Maraven S.A.	Bachaquero	11/66	168	15	—	Post-Eoceno	S	35	500	3,200
Venezuela	Zulia	Maraven S.A.	Bachaquero	10/84	7,795	[illegible]39	—	Post-Eoceno	S	37.3	N.D.	2,000
Venezuela	Zulia	Maraven S.A.	East Tia Juana	4/59	339	33	—	L.L.	S	38	N.D.	1,500
Trinidad	Trinidad & Tobago	Trintoc	Forest Reserve	8/76	58	4	1	Forest Sand	S	31	205	3,000
Trinidad	Trinidad & Tobago	Trintoc	Forest Reserve	1/74	29	2	1	Forest Sand	S	30	150	2,600

Reservoir oil				Residual oil saturation, %						
°API	cp	@ °F.	Previous prod.	Start	End	Project maturity	Total prod., bo/d	Enhanced prod., bo/d	Project eval.	Profit
14.3	2,750	70	Prim.	100	80	JS	—	—	—	—
10	100,000	70	None	100	80	JS	600	600	Prom.	No
12	2,000	80	Prim.	82	45	JS	400	—	TETT	Yes
12	2,000	80	Prim.	80	55	HF	300	300	Disc.	No
28	6	100	WF	50	35	JS	—	—		—
23	50	94	WF	45	21	JS	—	—		—
46	0.25	173	Prim.	85	46	JS	1,250	450	—	Yes
8.8	800,000	55	—	83	—	JS	—	—	TETT	TETT
8.8	800,000	55	—	83	—	JS	—	—	Succ.	—
13	7,000	67	Prim.	69	46	JS	290	290	Prom.	—
13	5,380	61	Prim.	70	47	HF	630	630	Prom.	—
12.2	15,000	70	Prim.	85	60-68	HF	650	300-350	Disc.	—
15.6	1,800	70	Prim.	86	60-68	HF	550	250-300	Disc.	—
24	16	125	WF	62	—	HF	170	170	Prom.	—
18	70.3	110	Prim.	66	—	HF	2,500	2,500	Succ.	—
18	70	110	Prim.	56	—	HF	760	760	Succ.	—
18	70	110	Prim.	62	—	HF	1,070	1,070	Succ.	—
36	0.465	184	Gas/WF	0.82	0.28	HF	1,079	420	Prom.	Yes
35.9	0.455	190	WF	0.40	0.23	JS	647	446	Prom.	Yes
10-12	20,000-10,000	60	—	65	50	HF	400-500	400-500	Prom.	—
28	3	150	Prim & WF	30	—	JS	—	—	—	—
44	0.4	218	Prim.	90	10	HF	7,397	7,397	Succ.	Yes
46	0.2	222	Prim.	90	15	HF	420	420	Succ.	Yes
42	0.38	216	Prim.	90	15	HF	524	524	TETT	Yes
38	0.875	167	Prim.	93	3.8	HF	28,000	28,000	Succ.	Yes
44	0.33	204	Prim.	97	30	JS	2,800	1,200	Prom.	Yes
45	0.37	194	Prim.	97	30	JS	2,400	1,065	Prom.	Yes
41.6	0.42	199	WF	88	—	JS	4,200	1,500	TETT	TETT
40	0.14	198	Prim.	0.91	—	JS	2,900	1,220	Prom.	Yes
38	0.32	195	Prim.	88.3	25.2	JS	1,600	640	Prom.	Yes
40	0.36	200	Prim.	90.9	19	JS	4,000	1,775	Prom.	Yes
37	0.42	196	Prim.	92	—	JS	1,600	855	TETT	Yes
16	800	76	Prim.	82	NA	JS	—	—	TETT	TETT
7-9	—	42	—	70-80	—	Term 9/85	—	—	—	—
7-9	—	42	—	70-80	—	Term 9/85	—	—	—	—
7-9	—	42	—	70-80	—	HF	—	—	—	—
42	1.14	133	WF	38	22	HF	—	—	Prom.	—
23	10	95	Prim.	75	50	—	—	—	Succ.	Yes

Reservoir oil				Residual oil saturation, %						
°API	cp	@ °F.	Previous prod.	Start	End	Project maturity	Total prod., bo/d	Enhanced prod., bo/d	Project eval.	Profit
11	5,000	100	—	75	15	JS	260	260	Prom	—
11	5,000	100	—	75	15	JS	410	410	Prom	Yes
15.7	95	100	Prim/Cyclic Steam	—	—	NC	1,500	1,500	Succ.	Yes
12	1,000	111	—	81	56	HF	22,400	20,000	Prom	Yes
13.1	1,000	113	Prim.	88	68	—	7,500	6,600	Prom.	Yes
13.1	750	113	—	86	74	NC	1,976	592	Prom.	Yes
13.1	1,300	104	Prim.	92	78	NC	2,159	60	Prom.	Yes
13.1	4,100	110	Prim.	95.1	80.9	HF	10,451	8,712	Prom.	Yes
11.8	1,000	110	Prim.	91.1	76	HF	5,305	3,351	Prom.	Yes
13.1	6,000	123	Prim.	94.3	80.8	HF	5,960	4,879	Prom.	Yes
12	3,000	104	Prim.	95.6	78.6	HF	1,378	1,137	Prom.	Yes
12.2	1,000	108	Prim.	92.6	72.3	HF	810	534	Prom.	Yes
12	500	104	—	93.6	82.5	HF	8,400	6,324	Prom.	Yes
11.6	4,000	104	Prim.	94.6	79.6	HF	9,274	7,716	Prom.	Yes
11.9	2,000	111	Prim.	92.7	74.5	HF	5,633	3,975	Prom.	Yes
11.7	7,500	106	Prim.	97.5	82.5	HF	10,666	9,783	Prom.	Yes
9.5	12,000	105	Prim.	100	76.9	NC	130	130	Prom.	Yes
10.5	10,000	95	Prim.	99.9	84.6	HF	1,444	1,444	Prom.	Yes
10.2	12,000	102	Prim.	99.9	89.9	HF	12,206	12,206	Prom.	Yes
15	580	126	Prim.	83.3	68.8	HF	12,464	5,762	Prom.	Yes
15.2	500-4,500	122	Prim.	86	74.3	HF	5,357	2,129	Prom.	Yes
15.2	250	125	Prim.	73.7	63.5	NC	206	168	Succ.	Yes
11.4	3,500	117	Prim.	96.9	58.7	NC	3,136	1,076	Succ.	Yes
11.4	3,500	117	Prim.	9	7	NC	4,452	825	Succ.	Yes
11.4	4,000-9000	118	Prim.	97.8	—	HF	9,465	4,632	Prom.	Yes
11.8	~~2,500-11,500~~	115	—	97.3	89.4	HF	21,860	4,822	Prom.	Yes
11	2,000-3,700	125	Prim.	90.6	77.9	HF	32,348	6,625	Prom.	Yes
13.8	600	118	Prim.	79.8	62.2	Term 8/74	298	100	Succ.	Yes
13.4	700	115	Prim.	76.4	55.8	Term 8/73	356	110	Succ.	Yes
13	150	130	Prim.	86.2	68.6	Term 11/70	465	251	Succ.	Yes
13	300-800	117	Prim.	85	—	JS	107,000	48,000	Prom.	Yes
12	1,000	108	—	—	—	HF	816	534	Prom.	Yes
19	32	120	Prim.	57	45	HF	100	100	Prom.	—
19	90	102	Prim.	66	50	HF	75	75	Prom.	—

Other foreign activity

Country	Type project	Operator	Field	Start date	Area, acres	Number wells Prod.	Inj.	Pay zone	Formation type	Porosity, %	Permeability, md	Depth, ft
Congo	Steam	Elf Congo	Emeraude-Offshore	1985	9	8	2	Senonian	S	25	80	600
France	Steam	Total CFP	Mar[illegible]bronn	1983	23	19	6	Oligocene	S	10-25	1,200	826
France	Micellar-polymer	Elf Aquitaine	Chateaurenard	1984	71	9	4	Neocomien	S	30	1,300	1,950
France	Steam	Elf Aquitaine	Lacq Superieur	1977	45	9	2	Senonien	LS	15	1	2,100
Germany Lower Saxony	Polymer	Wintershall AG	Bockstedt	9 84	57	5	1	Valenginian	S	23	4,000	4,100
Germany Lower Saxony	Steam	Wintershall AG	Emlichheim 06	5 81	121	25	4	Valenginian	S	30	6,000	2,400
Germany Lower Saxony	Hot Water Flood	Wintershall AG	Emlichheim 15	1 67	115	15	2	Valenginian	S	30	6,000	2,300
Germany Lower Saxony	Hot Water Flood	Wintershall AG	Emlichheim 17	10 74	81.5	10	2	Valenginian	S	30	6,000	2,300
Germany Lower Saxony	Hot Water Flood	Wintershall AG	Emlichheim 07	10 67	81.5	10	1	Valenginian	S	30	6,000	2,400
Germany Lower Saxony	Hot Water Flood	Wintershall AG	Emlichheim 10	11 81	41.5	6	1	Valenginian	S	30	6,000	2,460
Germany Lower Saxony	Hot Water Flood	Wintershall AG	Emlichheim 11	9 73	70	8	2	Valenginian	S	30	6,000	2,550
Germany Lower Saxony	Hot Water Flood	Wintershall AG	Emlichheim 13	5 71	28.5	4	1	Valenginian	S	30	6,000	2,460
Germany Lower Saxony	Hot Water Flood	Wintershall AG	Emlichheim 14	10 67	64	8	1	Valenginian	S	30	6,000	2,550
Germany Lower Saxony	Steam	Wintershall AG	Ruehlertwist	12 78	237	24	2	Valenginian	S	28	5,000	2,650
Germany Northwest	Polymer	Preussag AG	Edesse-Nord	11 85	4.2	1	2	Wealden	S	24	1,200	1,200
Germany	Polymer	Texaco AG	Hankensbuettel Westblock 2	5 79	—	6	3	Upper Dogger Beta	S	28	2,000-4,000	4,900
Germany	Surfactant	Texaco AG	Hankensbuettel Westblock 4	1982	83	7	3	Lower Dogger Beta	S	28	300-1,000	4,900 4,900
Germany	Polymer	Texaco AG	OERREL Westblock 4	1980	410	13	3	Upper Dogger Beta	S	28	2,000-4,000	4,900
Germany	Polymer	Texaco AG	Hankensbuettel Westblock 4	4 77	165	7	2	Upper Dogger Beta	S	28 4,000	2,000-	4,900
Italy	CO_2 Huff and Puff	Agip S.p.A.	Pisticci	10 85	50	—		Cupello	LS	8	1,000	6,500
Italy	Steam	Agip S.p.A.	Vallecupa	9 84	37	4	1	Orte	Marie	4	100	1,980
Italy	CO_2 immiscible	Agip S.p.A.	Ponte Dirillo	12 83	1,853	4	1	Taormina	Dolo.	7.5	200	9,700
Indonesia	Micellar polymer	Total	Handil	82	4	1	3		S	30	1,000	4,500

Steam EOR still leads in U.S.

Operator	Field	State	County	Start date	Area acres	Number wells Prod.	Inj.	Pay zone	Formation type	Porosity, %	Permeability md	Depth ft
Arco	Midway-Sunset	Calif	Kern	1 72	7.8	21	2	Potter	S	32	1,675	1,200
Arco	Midway-Sunset	Calif	Kern	2 72	3.1	61	7	Potter	S	32	2,500	1,400
Arco	Midway-Sunset	Calif	Kern	8 72	3.2	12	1	Reef Ridge	S	32	1,000	1,000
Arco	Kern Front	Calif	Kern	9 19 77	4.8	3	1	Change	S	35	1,600	2,070
Arco	Midway-Sunset	Calif	Kern	12 84	1.5	3	1	Fairfield Tar Sand	S	32	3,030	1,050
Angus Pet. Co	Blackwell's Corner	Calif	Kern	1 84	340	25		Agua	S	37	475	1,300
Champlin	Wilmington	Calif	Los Angeles	7 82	20	3	4	Tar	S	30.1	2,780	2,563
Chase	Oxnard	Calif	Ventura		1,500	38		Vaca Sand	S	36	2,500	1,800
Chevron	Bradley Canyon	Calif	Santa Barbara	4 82	40	16	4	Sisquoc	S	30	800	3,000
Chevron	Cymric Sec. 31X	Calif	Kern	4 79	61	34	22	Amnicola	S	35	2,700	1,300
Chevron	Cymric 36 W	Calif	Kern	5 75	81	105	57	Tulare Amnicola	S	33	1,800	1,200
Chevron	Kern River Sec. 4	Calif	Kern	6 78	156	177	62	Kern River	S	34	—	850
Chevron	McKittrick 9Z	Calif	Kern	8 78	80	32	16	Amnicola	S	38	2,700	1,300
Chevron	McKittrick 21Z	Calif	Kern									
Chevron	Kern River MC1	Calif	Kern	4 76	132	130	62	Kern River	S	34	2,800	960
Chevron	Kern River ANO	Calif	Kern	5 74	160	102	57	Kern River	S	32	—	1,000
Chevron	Kern Front	Calif	Kern	2 80	36	18	9	Chanac	S	29	1,000	2,500
Chevron	West Coalinga 25-D	Calif	Kern	2 80	36	18	9	Chanac	S	29	1,000	2,500
Chevron	West Coalinga 13-D	Calif	Fresno	5 73	550	147	89	Temblor	S	35	1,000	1,200
Chevron	N. E. McKittrick 16-Z	Calif	Kern	9 75	87	36	22	Amnicola	S	35	2,700	1,300
Chevron	Kern River KCL 39	Calif	Kern	10 75	118	26	45	Kern River	S	33	—	1,400
Chevron	Midway-Sunset Sec. 26 C	Calif	Kern	11 75	84	75	40	Monarch	S	32	1,100	1,300
Chevron	Midway-Sunsect Sec. 1F	Calif	Kern	2 78	13	20	6	Upper 10-10	S	32	2,200	1,600
Chevron	Midway-Sunset Sec. 15A	Calif	Kern	5 78	23	40	5	Potter	S	36	3,900	1,400
Chevron	Kern River Sec. 3	Calif	Kern	9 68	424	271	108	Kern River	S	34	3,389	775
Chevron	Kern River MCII	Calif	Kern	4 71	80	44	32	Kern River	S	34	2,800	960
Chevron	Edison 27 RT	Calif	Kern	7 77	40	13	6	Kern River	S	30	—	1,000
Chevron	Lost Hills	Calif	Kern	3 86	16	9	4	A	S	40	2,500	850
Chevron	Cymric	Calif	Kern	2 86	44	29	23	Tulare	S	33	2,900	1,200
Chevron	Lost Hills	Calif	Kern	8 85	14	14	6	—	S	38	2,100	350
Chevron	Fruitvale	Calif	Kern	5 77	860	122	0	Chanac	S	29	920	3,300
Chevron	Tejon-Grapevine	Calif	Kern	12 78	40	8	0	Basal Chanac	—	30	2,160	2,600
Chevron	Lost Hills Sec. 32	Calif	Kern	2 79	150	29	0	Etchegoin A	S	36	1,800	910
Chevron	Yorba Linda	Calif	Kern	7 62	80	64	0	Shallow Tar	S	27	1,000	250- 1,650
Chevron	Cymric	Calif	Kern	5 66	26	19	0	Tar	S	32	1,200	700
Chevron	Kern Bluff	Calif	Kern	7 68	214	52	0	Santa Margarita	S	29	2,000	950
Chevron	Lost Hills Sec. 18	Calif	Kern	7 83	38	34	12	Tulare	S	38	2,100	300

Table E

Reservoir oil API	Reservoir oil cp	Reservoir oil °F	Previous prod.	Residual oil saturation, % Start	Residual oil saturation, % End	Project maturity	Total prod. bo/d	Enhanced prod. bo/d	Project eval.	Profit
22	100	85	Prim	—	—	JS			TETT	—
11	23,000	68	—	80	—	Term. 8/17/85	59	59	Succ	No
27	40	86	Prim. WF	60	31	HF	8,900	4,950	Prom	No
22	20	150	Prim	45		HF	1,100	250	Prom	Yes
34	11	130	WF	39	33	JS	150		TETT	TETT
24.5	175	95	Hot Water Flood	62	45	NC	1,600	1,500	Succ	Yes
24.5	175	95	WF	79	54	HF	240	235	Succ	Yes
24.5	175	95	WF	66	55	HF	330	270	Succ	Yes
24.5	175	95	WF	70	56	HF	170	165	Succ	Yes
24.5	175	95	WF	70	68	HF	80	55	TETT	TETT
24.5	175	95	WF	73	68	NC	280	246	Succ	Yes
24.5	175	95	WF	70	58	NC	97	88	Succ	Yes
24.5	175	95	WF	73	58	NC	185	182	Succ	Yes
25	175	100	Edge Water Drive	51	47	HF	1,200	1,100	Succ	Yes
36	8	73	WF	53	37	JS	12.5	8	TETT	No
28	13	136	WF	72	47	NC	1,700	1,360	Succ	Yes
27	11	136	WF	58	40	HF	100	30	TETT	TETT
25	17	136	WF	60	45	HF	540	400	Prom	Yes
27	13	136	WF	69	42	NC	1,000	700	Succ	Yes
11	23	153	Prim	60		JS	800	—	TETT	TETT
16-26	13.4	80.6	Prim			NC			Disc	No
15.6	25	210	Prim	63.5		HF	1,250	500	Prom	Yes
33	0.4	110	WF	35	—		400	400	—	—

Table F

Reservoir oil API	Reservoir oil cp	Reservoir oil °F	Previous prod.	Residual oil saturation, % Start	Residual oil saturation, % End	Project maturity	Total prod. bo/d	Enhanced prod. bo/d	Project eval.	Profit
12	2,000	100	Steam Soak	—	—	HF	400	174	Succ	Yes
14	1,500	100	WF	—	—	NC	943	299	Succ	Yes
13	1,500	100	Steam Soak	—	—	HF	165	100	Succ	Yes
13.9	1,270	105	Prim	—	—	Term	84	29	Disc	Yes
14	1,500	95	Prim	—	—	JS	40	33	TETT	TETT
13	4,000	100	Prim	40	15	JS	—	600	TETT	Yes
14	283	123	WF	55	20	HF	500	500	Succ	Yes
5.8	2.5 mil	100	—	100	66	JS	850	850	*	—
11	17,600	120	Prim	90	40	JS	70	34	TETT	NO
12	3,000	1,000	Prim	50	—	HF	1,274	1,274	Succ	YES
13	4,000	100	—	52	—	HF	5,486	5,200	Succ	YES
14	2,000	90	—	60	—	HF	5,389	5,069	Succ	YES
13	4,000	100	Cyclic	47	—	HF	932	932	Succ	YES
—	—	—	—	—	—	JS	184	184	PROM	—
14	2,000	90	—	59	—	HF	3,060	2,973	Succ	YES
14	2,000	90	Prim	55	—	HF	3,060	3,060	Succ	YES
12	2,300	100	Prim	50	13*	HF	195	129	Disc	NO
12	2,300	100	Prim	50	12	HF	5,616	5,056	—	—
13	1,000	90	Prim	46	15	HF	4,628	4,414	Succ	YES
12	4,000	100	Cyclic	57	—	HF	1,229	1,229	Succ	YES
14	2,000	90	—	65	—	HF	1,467	1,467	Succ	YES
14	1,500	150	Cyclic	58	20	HF	6,951	6,296	Succ	YES
14	1,500	105	Cyclic	55	15*	NC	452	364	Disc	—
14	800	120	Cyclic	61	20	NC	1,741	1,211	Succ	YES
14	2,000	90	Prim	55	—	HF	10,915	10,630	Succ	YES
14	2,000	90	Prim	59	—	HF	2,193	2,182	Succ	YES
14	2,000	90	Prim	50	—	HF	2,180	2,100	Succ	YES
14	1,400	100	Cyclic	50	20	JS	157	107	TETT	YES
12	5,500	100	Cyclic	51	15	JS	2,400	2,050	TETT	TETT
12	4,600	90	Cyclic	56	20	JS	40	30	TETT	—
19	78	131	Prim	71	—	HF	1,456	1,164	PROM	YES
16	167	115	Prim	—	—		41	0	TETT	—
18	200	90	Prim	72	—	HF	627	138	Succ	YES
13	6,400	97	Prim	95	—	NC	962	770	Succ	YES
11	6,500	81	Prim	90	—	NC	328	262	Succ	YES
15	1,000	84	Prim	74	—	NC	132	132	Succ	YES
14	400	75	Cyclic	88	—	JS	1,160	1,160	Succ	Yes

Steam EOR still leads in U.S. .... continued

Operator	Field	State	County	Start date	Area, acres	Number wells Prod.	Number wells Inj.	Pay zone	Formation type	Porosity, %	Permeability, md	Depth, ft
Chevron	Lost Hills Sec 30	Calif	Kern	1 80	190	37	4	Etchegoin A	S	40	800	550
Chevron	Lost Hills Sec 32	Calif	Kern	4 77	120	30	4	Etchegoin Main	S	40	62	1,150
Cities Service	Kern Front	Calif	Kern	11 81	342	120	—	Etchegoin Chanac	S	33	3,250	1,300-1,500
Drilling & Production	Midway-Sunset	Calif	Kern	1965	160	34	20	Monarch	S	22	300	1,400
Elf Aquitaine	Poso Creek	Calif	Kern	1980	50	35	19	Etchegoin	S	35	1,000	1,100
Elf Aquitaine	Poso McVan	Calif	Kern	1980	120	32	19	Etchegoin	S	30-40	5,000	1,300
Exxon	Edison	Calif	Kern	1965	1,100	—	—	Kern River	S	28	1,100	1,100
Phillips	Huntington Beach	Calif	Orange	1 85	5 6	4	1	"AA"	S	32	1,000	1,600
Phillips	Huntington Beach	Calif	Orange	12 83	5 6	2	1	TM	S	32	300	2,550
Phillips	Huntington Beach	Calif	Orange	6 82	8 3	6	1	TM	S	32	850	2,300
Phillips	Huntington Beach	Calif	Orange	10 81	3 5	5	1	TM	S	32	850	2,100
Phillips	Huntington Beach	Calif	Orange	6 64	450	54	—	TM	S	32	850	2,100
Phillips	Smackover	Ark	Ouachita	10 71	985	173	15	Nacatoch	S	35	2,000	1,920
Phillips	McCool Ranch	Calif	Monterey	11 82	100	3	—	Lombardi	S	32	2,000	2,000
Phillips	Midway Sunset	Calif	Kern	8 78	154	125	—	Reefridge & Monarch	S	29	1,432	1,220
Rio Petro	O'Connell Ranch Unit	N M	Guadalupe	8-2 81	1 2	5		O'Connell	S	20 5	250	350
Rio Petro	T-4 Ranch Unit	N M	Guadalupe	10 11	1 2 82	3	1	O'Connell	S	20 5	250	709
Marathon	Poso Creek	Calif	Kern	10 82	309	26	26	Etchegoin Chanac	S	35	2,000	2,400
Mobil	San Ardo	Calif	Monterey	6 68	230	93	17	Aurignac	S	34 5	3,000	2,300
Mobil	San Ardo	Calif	Monterey	3 80	49	29	7	Lombardi	S	32 5	3,000	2,100
Mobil	North Midway-Sunset	Calif	Kern	11 67	374	340	—	Potter	S	35	1,000	1,000
Mobil	Midway-Sunset	Calif	Kern	10 70	400	82	—	Monarch	S	34	4,000	950
Mobil	South Belridge	Calif	Kern	1965	1,655	71	—	Tulare	S	35	3,000	1,000
Mobil	South Belridge	Calif	Kern	1969	1,100	400	145	Tulare	S	35	3,000	1,000
Mobil	Kern Front	Calif	Kern	10 82	21	10	4	Etchegoin	S	37	1,000	1,800
Mobil	Kern Front	Calif	Kern	5 74	480	90	—	Etchegoin	S	37	1,000	1,800
Mobil	Cymric, McKittrick Fee	Calif	Kern	7 65	180	53 40	—	Welport Amnicola	S	35	3,000	500
Mobil	Edison	Calif	Kern	12 81	100	15	—	Kern River	S	30	1,000	1,100
Santa Fe Energy	Midway-Sunset	Calif	Kern	3 85	100	200	25	Potter	Unconsolidated sand	35	3,000	1,200
Santa Fe Energy	Midway-Sunset	Calif	Kern	10 72	5	13	4	Potter	S	30	2,500	850
Santa Fe Energy	Midway-Sunset	Calif	Kern	1964	480	480	—	Potter	Unconsolidated sand	35	3,000	1,200
Santa Fe Energy	Coalinga	Calif	Fresno	11 84	15	12	6	Lower Temblor	S	30	100-300	1,450-1,550
Santa Fe Energy	Midway-Sunset	Calif	Kern	10 75	33	42	14	Spellacy	S	30	2,250	550
Santa Fe Energy	Coalinga	Calif	Fresno	3 79	15	12	6	Lower Temblor	S	30	100-300	1,650
Santa Fe Energy	Coalinga	Calif	Fresno	4 84	24	30	9	Lower Temblor	S	30	500-3,000	1,400-1,600
Santa Fe Energy	Coalinga	Calif	Fresno	7 79	16	14	4	Lower Temblor	S	30	500-3,000	1,300-1,500
Santa Fe Energy	Coalinga	Calif	Fresno	5 79	18	12	6	Lower Temblor	S	31	500-3,000	850-1,500
Santa Fe Energy	Coalinga	Calif	Fresno	12 82	180	86	25	Lower Temblor	S	30	800-1,600	1,500-1,800
Santa Fe Energy	Coalinga	Calif	Fresno	9-78	15	12	6	Lower Temblor	S	30	800-1,600	1,700-1,800
Santa Fe Energy	Midway-Sunset	Calif	Kern	1979	250	42	14	Spellacy	S	30	1,050-3440	400-700
Santa Fe Energy	Kern River	Calif	Kern	1 80	180	140	65	Kern River	S	30	1,00-3,000	700
Santa Fe Energy	Midway-Sunset	Calif	Kern	4 83	520	46	0	Basal Tulare	S	35	1,300	1,300
Santa Fe Energy	Midway-Sunset	Calif	Kern	6 64	60	88	0	Potter	S	36	500-3,000	1,400
Santa Fe Energy	Midway-Sunset	Calif	Kern	1980	6	13	4	Potter	S	30	1,500	1,000
Santa Fe Energy	Midway-Sunset	Calif	Kern	1965	640	153	—	Potter	S	30	1,500	1,200
Santa Fe Energy	Midway-Sunset	Calif	Kern	1983	160	180	—	Potter	S	30	1,000	1,200
Santa Fe Energy	Brea Olinda	Calif	Orange	10 1 85	2 5	4	1	Anaheim	S	27	1,000	900
Shell	Yorba Linda	Calif	Orange	1971	220	222	44	Upper Conglomerate	S	22	6,000	650
Shell	Poso Creek	Calif	Kern	6 80	360	62	—	Etchegoin	S	—	—	2,500
Shell	Brea Olinda	Calif	Orange	6 85	19	20	2	Middle A Sand	S	20	200	2,600
Shell	Mount Poso	Calif	Kern	1971	2,500- 3,000	325	30	Vedder	S	—	—	1,800
Shell	Midway-Sunset	Calif	Kern	1983	405	154	16	Sub-Hoyt	S	—	—	1,080
Shell	Midway-Sunset	Calif	Kern	1971- 1984	375	490	50	Potter	S	—	—	1,200
Shell	Midway-Sunset	Calif	Kern	1980	70	147	13	Monarch	S	—	—	1,300
Shell	McKittrick	Calif	Kern	11 85	180	7	—	Tulare	S	—	—	500
Shell	Kern River	Calif	Kern	1970	600	391	168	Kern River Series	S	—	—	300-850
Shell	Cymric	Calif	Kern	10 85	85	17	—	Tulare	S	—	—	1,400
Shell	Coalinga	Calif	Kern	1980	300	193	45	Temblor Zone I	S	—	—	1,000
Shell	Coalinga	Calif	Fresno	1984	300	60	—	Temblor Zone II	S	—	—	1,800
Shell	Coalinga	Calif	Fresno	1982	57	21	10	Temblor Zone II	S	—	—	1,800
Shell	Coalinga	Calif	Fresno	1981	300	123	18	Temblor Zone II	S	—	—	1,600
Shell	Coalinga	Calif	Fresno	8 84	240	85	12	Temblor Zone I	S	—	—	1,200
Shell	Cat Canyon (East)	Calif	Santa Barbara	8 85	35	7	—	Brooks Sand	S	30	1,400	3,300
Shell	White Castle	La	Iberville	8 76	44	8	2	U	S	35	3,000	1,100
Shell	White Castle	La	Iberville	8 76	62	26	9	V type	S	35	3,000	1,400
Shell	Cat Canyon	Calif	Santa Barbara	3 85	20	5	—	Basal Sisquoc	S	32	750	4,400
Shell	Casmalia	Calif	Santa Barbara	1980	45	25	—	Monterey	Siliceous Shale	20	1-5	1,000
Shell	Belridge	Calif	Kern	1961	2,880	3,000	900	Tulare	S	36	2,400	400-1,400
Shell	Arroyo Grande	Calif	San Luis Obispo	9 84	208	—	—	M,	S	31	300	200-500
Sun	Cymric	Calif	Kern	1981	135	100	4	Tulare	S	35	1,500	600-1,500

Table F

Reservoir oil				Residual oil saturation, %						
°API	cp	°F	Previous prod.	Start	End	Project maturity	Total prod. b/d	Enhanced prod. b/d	Project eval.	Profit
18	300	90	Prim.	—	—	HF	596	542	Prom.	—
20	50	100	Prim.	—	—	NC	138	96	—	—
14	1,525	95	Prim.	50	15	HF	1,500	1,445	Succ.	Yes
13	13.3	90	Prim.	—	—	ongoing	140	30	Prom.	Yes
13	8,000	105	Prim.	20	—	HF	550	520	NE	No
16	310	95	Prim.	—	—	HF	1,000	1,000	Succ.	Yes
12	8,000	95	Prim.	45	20	HF	525	525	Succ.	Yes
16	150	125	Steam Soak	75.5	26.5	JS	150	70	TETT	TETT
16	800	130	Steam Soak	68.0	34.0	JS	25	12	TETT	TETT
130	1,000	12.0	Steam Soak	60.0	24.0	HF	140	90	Succ.	Yes
13	1,000	120	Steam Soak	51.0	20.4	NC	50	40	Pom.	Yes
13.0	1,000	120	Prim.	75.5	52.0	HF	900	700	Succ.	Yes
20	75	110	Prim.	71	50	NC	1,200	600	Succ.	Yes
10.5	12,000	105	Prim.	60	—	Term-1985	50	40	Disc.	No
13	2,000	100	Prim.	67	—	HF	2,300	2,200	Succ.	Yes
17	6,000	70	None	55	27.5	JS	0	0	TETT	No
17	6,000	65	None	50	25	JS	0	0	TETT	No
12.7	2,600	110	Prim.	90	89	HF	700	400	Succ.	Yes
12	300	130	Steam Soak	55	27	HF	2,300	2,300	Succ.	Yes
11	2,000	125	Steam Soak	55	27	JS	3,500	3,500	Succ.	Yes
12	2,000	100	Prim.	65	30	HF	5,300	5,300	Succ.	Yes
13	800	85	Prim.	95	81	HF	739	739	Succ.	Yes
14	1,600	95	Prim.	64	60	WC	900	700	Succ.	Yes
14	1,600	95	Prim.	60	35	HF	23,600	22,400	Succ.	Yes
14	800	100	Steam Soak	67	25	NC	200	150	NE	—
14	800	100	Prim.	86	67	NC	385	—	Succ.	Yes
13	1,500	95	Prim.	87.5	57.7	NC	285	285	Succ.	Yes
17	800	100	Prim.	87	33	JS	45	35	Succ.	Yes
11.5	10,000	80	Cyclic Steam	55		JS	3,400	0	Prom.	TETT
11	4,000	100	Cyclic	95	50	HF	—	—	—	—
11.5	10,000	80	Prim.	55	15	NC	8,000	7,000	Succ.	Yes
14.5	1,665	75	Prim.	35	—	JS	350	300	Prom.	Yes
12	6,500	90	Cyclic	100	40	HF	—	—	—	—
14.5	1,665	75	Prim.	35	—	Term	250	200	Disc.	No
14	2,284	75	—	35	—	JS	410	400	Prom.	Yes
14	2,284	75	Prim.	35	—	NC	410	400	Succ.	Yes
14	2,284	75	Prim.	35	—	NC	—	475	Succ.	Yes
14.5	1,667	75	Prim.	35	—	JS	2,400	2,300	Succ.	Yes
14.5	1,667	75	Prim.	35	—	NC	390	350	Succ.	Yes
12	6,500	90	Prim.	59	38	NC	—	400	Succ.	Yes
13		85	Prim.	45	15	NC	3,800	3,000	Succ.	Yes
10.5	3,000	105	Prim.	50	45	JS	550	450	Succ.	Yes
11	3,000	110	Prim.	60	33	HF	1,950	1,730	Succ.	Yes
11	20,000	90	Steam Soak	60	33	Term.	166	127	Disc.	No
11	20,000	90	Prim.	60	33	HF	2,500	1,500	Succ.	Yes
11.5	20,000	90	Steam Soak	60	33	JS	3,900	2,000	Succ.	Yes
13	4,000	100	Prim.	55	30	JS	100	70	Prom.	Yes
12	6,400	85	Steam Soak	66	21	NC	4,000	4,000	Succ.	Yes
12.5	600	110	Prim.	—	—	JS	700	400	TETT	JS
14	500	120	Steam Soak	49	30	JS	500	300	Prom.	No
16	27.7	110	Prim.	—	—	NC	18,000	17,800	Succ.	Yes
13	3,000	100	Prim.	—	—	JS	5,400	5,000	Succ.	Yes
11	8,000	95	Prim.	—	—	HF	14,500	14,500	Succ.	Yes
13	5,000	13	Steam Soak	—	—	HF	6,000	5,800	Succ.	Yes
12	10,000	100	None	—	—	JS	—	—	TETT	TETT
13	6,000	85	Prim.	—	—	HF	9,150	8,720	Succ.	Yes
13	2,000	100	Prim.	—	—	JS	25	0	Prom.	Yes
14	6,000	110	Prim.	—	—	HF	5,300	5,000	Succ.	Yes
18	150	100	Prim.	—	—	JS	600	500	TETT	TETT
12	700	100	Prim.	—	—	HF	700	500	Succ.	Yes
18	150	100	Steam Soak	—	—	HF	3,400	3,000	Succ.	Yes
13	2,000	95	Prim.	—	—	JS	1,800	1,630	Succ.	Yes
6-10	7,000	135	None	68	—	JS	0	0	TETT	No
16	145	88	Prim.	—	—	HF	530	530	Succ.	Yes
16	312	92	Prim.	—	—	HF	1,530	1,530	Succ.	Yes
10.8	2,896	130	Prim.	55	—	JS	60	30	TETT	No
8	10,000	100	Prim.	—	—	Term	180	15	Disc.	No
13	1,900	95	Prim.	75	20	HF	89,700	89,000	Succ.	Yes
15	4,000	100	Prim.	63	55	JS	700	350	TETT	Yes
12	—	80	Prim.			HF	1,423	1,423	Succ.	Yes

Steam EOR still leads in U.S. .... continued

Operator	Field	State	County	Start date	Area, acres	Number wells		Pay zone	Formation type	Porosity, %	Permeability, md	Dept ft
						Prod	Inj					
Sun	Midway-Sunset Sec 15	Calif.	Kern	5/64	80	126	3	Potter	S	35	3,000	1,200
Sun	Midway-Sunset	Calif.	Kern	8/65	40	116	—	Potter	S	35	3,000	1,700
Sun	Midway-Sunset	Calif.	Kern	3/64	106	211	7	Potter/Tulare	S	35	3,000	1,200
Sun	Midway-Sunset	Calif.	Kern	11/82	—	6	1	Tulare/Gusher	S	31	1,800	1,000-2,300
Sun	Midway-Sunset	Calif.	Kern	7/84	—	176	—	Potter	S	—	—	—
Sun	Midway-Sunset	Calif.	Kern	1/84	—	105	2	Potter/Marvic/Tulare	S	—	—	1,100
Sun	Midway-Sunset	Calif.	Kern	1/84	—	71	—	Potter	S	—	—	1,100
Sun	Midway-Sunset	Calif.	Kern	7/84	—	30	—	Potter	S	—	—	—
Sun	Midway-Sunset	Calif.	Kern	7/84	—	92	—	Potter	S	—	—	—
Tenneco	Kern River	Calif.	Kern	1972	50	66	29	Kern River Series	S	33	4,000	600-1,200
Tenneco	Kern River	Calif.	Kern	1970	70	63	23	Kern River Series	S	33	4,000	1,200
Tenneco	Poso Creek	Calif.	Kern	1968	154	14	—	Etchegoin	S	32	2,500	2,400
Tenneco	Midway-Sunset	Calif.	Kern	1969	50	100	—	Metson	S	30	3,000	1,100
Tenneco	Midway-Sunset	Calif.	Kern	1981	40	70	10	Monarch	S	30	3,000	1,200
Tenneco	Kern River	Calif.	Kern	9/72	40	34	15	Kern River Series	S	31	2,500	900
Texaco	Cat Canyon	Calif.	Santa Barbara	1965	300	12	—	S8-516	S	30	2,000	3,000
Texaco	Cat Canyon	Calif.	Santa Barbara	1964	1,700	92	—	S1B	S	31	3,000	2,300
Texaco	Cat Canyon	Calif.	Santa Barbara	1977	390	83	—	S1A-S6	S	31	1,400	2,500
Texaco	Cat Canyon	Calif.	Santa Barbara	4/82	30	20	12	S1B	S	35	4,500	2,300
Texaco	East Cat Canyon	Calif.	Santa Barbara	11/77	30	18	3	S16B-Thomas Sand	S	31.5	404-1,749	2,610
Texaco	Lost Hills	Calif.	Kern	1977	85	36	20	Tulare	S	38	2,000	200
Texaco	South Belridge	Calif.	Kern	1985	20	25	16	Tulare	S	37	2,700	950
Texaco	McKittrick	Calif.	Kern	1984	12	16	9	Tulare	S	35	2,800	1,000
Texaco	Midway-Sec. 35	Calif.	Kern	1977	20	28	12	Potter	S	35	2,000	1,600
Texaco	Midway-Sec 35	Calif.	Kern	1984	7.5	16	5	Potter	S	35	2,000	1,600
Texaco	San Ardo	Calif.	Monterey	1965	835	345	35	Aurignac	S	39	2,200	2,200
Texaco	San Ardo	Calif.	Monterey	7/84	80	37	4	Lombard	S	35	5,200	1,900
Texaco	Midway-Reward	Calif.	Kern	2/77	12	26	9	Potter	S	33	3,000	1,300
Texaco	Midway-Security	Calif.	Kern	11/77	30	43	20	Potter	S	33	5,000	950
Texaco	Lost Hills	Calif.	Kern	1977	75	70	24	Etchegoin	S	40	2,000	400
Texaco	Midway-North Midway	Calif.	Kern	11/81	40	61	16	Potter	S	30	3,400	1,000
Tenneco	Kern River	Calif.	Kern	6/78	38	30	13	Kern River Series	S	31	2,000	600
Tenneco	Midway-Sunset	Calif.	Kern	1985	25	17	3	U. Monarch	S	29	2,000	1,300
Tenneco	Midway-Sunset	Calif.	Kern	1984	15	10	—	Sub Lakeview	S	30	4,500	1,300
Tenneco	Midway-Sunset	Calif.	Kern	1983	25	13	3	L. Monarch	S	30	2,500	1,500
Tenneco	Midway-Sunset	Calif.	Kern	3/73	24	48	6	Potter	S	34	3,000	1,600
Tenneco	Midway-Sunset	Calif.	Kern	4/85	14	29	5	Potter	S	34	3,500	1,500
Tenneco	Midway-Sunset	Calif.	Kern	4/84	17	31	2	Potter	S	34	3,500	1,600
Texaco	Wilcox	Calif.	Kern	3/83	69	26	15	Basal Etchegoin	S	31	1,945	2,000
Texaco	La Barge	Wyo.	Sublette	10/81	20	8	4	Almy	S	25.0	100	850
Texaco	Humble	Tex.	Harris	11/81	11.8	3	1	Yegua-13	S	33	345	4,100
Texaco	Sour Lake	Tex.	Hardin	6/84	7	8	4	Miocene OB-4	S	35	900	1,600
Texaco	Sour Lake	Tex.	Hardin	3/85	8	12	4	Miocene OB-2	S	33.3	1,000	2,000
Texaco	Sour Lake	Tex.	Hardin	4/80	2,645	—	—	Miocene	S	25-36	1,600	400-2,700
Texaco	Sour Lake	Tex.	Hardin	4/82	1.5	5	2	Miocene OB-1	S	32	1,500	500
Texaco	Sour Lake	Tex.	Hardin	11/81	19.8	24	12	Miocene OB-1	S	35.5	1,436	1,000
Texaco	Midway-Santiago Creek	Calif.	Kern	12/83	9	11	4	Tulare	S	34	2,500	1,300
Texaco	Wilcox (Poso Creek)	Calif.	Kern	3/83	69	26	15	Basal Etchegoin	S	31	1,945	2,000
Texaco	Kern River	Calif.	Kern	8/62	5,070	4,753	1,797	Kern River Series	S	31	4,000	1,000
Thums City of Long Beach	Wilmington	Calif.	Los Angeles	1978	193	23	8	Ranger		26	400	2,700
Unocal	South Tapo Canyon	Calif.	Ventura	12/82	65	9	—	4th Sespe	S	22	25	2,100
Unocal	Cymric	Calif.	Kern	1964	300	—	—	Tulare	S	35	1,000	1,100
Unocal	South Belridge	Calif.	Kern	3/85	167	5	5	Tulare	S	38	4,000	1,250
Unocal	North Belridge	Calif.	Kern	11/65	160	10	10	Tulare	S	38	2,500	800
Unocal	North Belridge	Calif.	Kern	8/64	35	11	11	Tulare	S	37	2,500	770
Unocal	Belridge	Calif.	Kern	10/64	50	17	17	Tulare	S	37	2,500	740
Unocal	McKittrick	Calif.	Kern	6/77	131	36	24	Amnicola	S	37	1,000-2,000	1,100
Unocal	McKittrick	Calif.	Kern	12/82	70	22	14	Amnicola	S	37	1,500	1,100
Unocal	McKittrick	Calif.	Kern	8/71	70	32	7	Tulare	S	37	1,000-2,000	1,200
Unocal	McKittrick	Calif.	Kern	8/83	17	20	8	Tulare	S	36	1,000-2,000	850
Unocal	Midway-Sunset	Calif.	Kern	6/77	39	48	31	Potter	S	24	1,500	1,000
Unocal	Midway-Sunset	Calif.	Kern	5/69	161	186	0	Potter	S	24	1,500	1,000
Unocal	Midway-Sunset	Calif.	Kern	1983	80.5	42	0	Tulare	Sand	31	1,146	700
Unocal	Midway-Sunset	Calif.	Kern	1-15-85	5.2	9	4	Potter	Sand	34.5	3,700	1,100
Unocal	Midway-Sunset	Calif.	Kern	1974	80.5	47	17	Potter	Sand	34.5	3,700	1,100
Unocal	Midway-Sunset	Calif.	Kern	1966	80.5	38	0	Potter	Sand	34.5	3,700	1,100
Unocal	Midway-Sunset	Calif.	Kern	1969	80	2	0	Tulare	S	26	300	1,900
Unocal	Midway-Sunset	Calif.	Kern	1974	60	28	0	Tulare	S	30	578	1,800
Unocal	Santa Maria Valley	Calif.	Santa Barbara	3/81	260	18	0	Pt. Sal	S	27	100	1,900
Unocal	Gato Ridge	Calif.	Santa Barbara	1970	130	16	0	Sisquoc Sib & S	S	32	2,500	1,900
Unocal	Jesus Maria	Calif.	Santa Barbara	8/82	20	2	0	Monterey	Fractured Chert-Dolo	7.5	2.0	3,500
Unocal	Guadalupe	Calif.	San Luis	3/81	644	82	12	Sisquoc	S	35	1,550	3,000
Unocal	Guadalupe	Calif.	San Luis	1955	2,970	108	0	Sisquoc	S	35	1,550	3,000
Unocal	Tensleep	Wyo.	Natrona	5/81	18	6	2	Tensleep	S	18	500	2,500
Victory	Midway-Sunset	Calif.	Kern	1968	200	117	0	Potter	S	25.5	500-1,500	600-1,000
Whitter, Mitt	Midway-Sunset	Calif.	Kern	1965	200	350	0	Potter	S	35	2,500	1,000-1,500
HOT WATER												
Arco	Midway-Sunset	Calif.	Kern	8/85	5.5	15	4	Tulare	S	33	2,500	1,000
Texaco	McKittrick	Calif.	Kern	1981	12	18	9	Potter	S	35	4,000	1,100
Amoco	Winkleman Dome	Wyo.	Fremont	1964	160	21	15	Nugget	S	22.8	481	1,225

Table F

Reservoir oil				Residual oil saturation, %						
API	cp	°F	Previous prod.	Start	End	Project maturity	Total prod. b/d	Enhanced prod. b/d	Project eval.	Profit
12	—	—	Prim.	—	—	HF	2,742	2,742	Succ.	Yes
12	—	—	Prim.	—	—	HF	2,530	2,530	Succ.	Yes
12	—	—	Prim.	—	—	HF	7,941	7,941	Succ.	Yes
11	—	60	Prim.	—	—	Term.	65	65	Disc.	No
—	—	—	Prim.	—	—	JS	2,216	2,216	Succ.	Yes
11	—	—	Prim.	—	—	JS	1,343	1,343	Succ.	Yes
11	—	—	Prim.	—	—	JS	658	658	Succ.	Yes
—	—	—	Prim.	—	—	JS	41	41	Succ.	Yes
—	—	—	Prim.	—	—	JS	770	770	Succ.	Yes
13	8,000	90	Steam Soak	29	2	NC	1,150	950	Succ.	Yes
13	8,000	90	Steam Soak	55	20	NC	1,050	850	Succ.	Yes
13	4,000	100	Prim.	65	55	HF	170	134	Prom.	Yes
11.5	800	130	Prim.	75	57	NC	1,000	1,000	Succ.	Yes
13	30	200	Steam Soak	45	20	HF	1,600	850	Succ.	Yes
13	7,000	84	Prim.	70	15	HF	635	610	Succ.	Yes
10	14,000	130	Prim.	—	—	NC	103	103	Succ.	Yes
8	100,000	100	None	—	—	NC	545	545	Succ.	Yes
7	50-100,000	110	None	—	—	HF	2,679	2,679	Succ.	Yes
8	100,000	110	None	—	—	NC	689	689	Succ.	Yes
10.4	13-25,000	110	Cyclic Steam Stimulation	—	—	HF	378	378	Prom.	Yes
13	20	220	Steam Stimulation	70	30	NC	791	762	Succ.	Yes
14	2,340	100	Steam Stimulation	58	25	JS	125	0	TETT	TETT
13	35	220	Steam Stimulation	60	30	JS	50	20	TETT	TETT
12	6,500	90	Steam Soak	55	20	NC	1,100	650	Succ.	Yes
12	1,500	90	Steam Soak	55	—	JS	400	150	Prom.	Yes
13	4,500	100	Cyclic	58	24	NC	13,817	13,817	Succ.	Yes
11	1,600	135	Cyclic	52	31	JS	800	790	TETT	No
13	1,500	90	Steam Stimulation	60	20	JS	410	60	Prom.	Yes
12	1,500	90	Steam Stimulation	60	20	NC	1,900	870	Succ.	Yes
13	10	250	Steam Stimulatoin	63	30	NC	1,655	1,530	Succ.	Yes
13	1,500	90	Steam Stimulation	60	20	HF	2,050	900	Succ.	Yes
13	5,000	78	Prim.	63	15	HF	592	592	Succ.	Yes
12	11,000	86	Prim.	60	30	JS	—	—	TETT	TETT
13	4,000	90	Prim.	60	20	JS	210	190	Succ.	Yes
12	11,000	86	Cyclic Steam	—	—	JS	450	450	Succ.	Yes
11.5	3,000	110	Steam Soak	65	15	NC	1,200	1,000	Succ.	Yes
11.5	1,000	130	Steam Soak	62	15	JS	600	300	TETT	TETT
11.5	1,000	130	Steam Soak	65	15	JS	1,200	900	Prom.	Yes
13	1,800	122	Steam Stimulation	50	20	JS	1,250	1,250	Prom.	Yes
25	7.6	68	WF	55	55	Term. 4 83	58	0	Disc.	No
47	1.6	139	Prim.	30	14	Term. 1 85	25	25	Disc.	No
16.2	107	100	Prim.	50	20	JS	151	117	Succ.	Yes
16.2	100	95	Prim.	50	20	JS	145	90	Prom.	Yes
11-24	—	—	Prim.	53	17	NC	30	21	Succ.	Yes
13	1,680	90	Prim.	55	22	HF	59	46	Succ.	Yes
14.7	665	90	Prim.	53	17	HF	368	363	Succ.	Yes
12	1,500	90	Steam Stimulation	60	20	JS	650	200	Prom.	Yes
13	1,800	122	Steam Stimulation	50	20	JS	1,250	1,250	Prom.	Yes
13	4,060	90	Prim.	70	30	HF	98,460	98,460	Succ.	Yes
19	24	12	WF	—	—	Term. 85	1,616	—	Disc.	No
16	200	95	Prim.	50	49	Term.	100	30	Disc.	No
13		—	Prim.	65	45	HF	4,500	3,800	Succ.	Yes
13.2	450	130	Prim.	66	52	JS	131	58	TETT	TETT
13.6	450	130	Prim.	53	49	HF	122	122	Succ.	Yes
13.6	450	130	Prim.	59	40	HF	111	111	Succ.	Yes
13.7	450	130	Prim.	62	41	HF	53	53	Succ.	Yes
11.3	500	170	Steam Soak	60	36	NC	1,214	1,214	Succ.	Yes
11.3	300	180	Steam Soak	60	30	NC	366	366	Succ.	Yes
13	700	150	Steam Soak	55	35	NC	275	275	Succ.	Yes
11.4	1,000	140	Steam Soak	60	27	HF	790	790	Succ.	Yes
11.3	100	220	Steam Soak	55	34	NC	2,000	2,000	Succ.	Yes
11.3	500	170	Prim.	57	35	HF	5,400	5,400	Succ.	Yes
11.4	10,000	100	Prim.	54	37.8	JS	950	740	Succ.	Yes
11.4	10,000	110	Steam Drive	52	28	JS	1,000	250	Prom.	Yes
11.4	10,000	110	Steam Soak	57.2	32.3	HF	2,900	2,500	Succ.	Yes
11.4	10,000	110	Prim.	63.4	57.2	Term.	1,300	1,100	Succ.	Yes
14	800	106	Prim.	50	35	JS	6.0	0	Prom.	Tett
13	900	114	Prim.	50	0	Term.	203	180	Disc.	No
12	75	110	Prim.	40	31	HF	300	180	Prom.	Yes
10.5	1,450	130	Prim.	65	49	HF	410	265	Succ.	Yes
9	20,000	110	Prim.	60	45	JS	60	100	Succ.	Yes
9	580	85	Cyclic	65	61	NC	2,000	300	Disc.	No
9	580	85	Prim.	80	60	HF	1,300	700	Succ.	Yes
14	580	90	Prim.	67	30	HF	200	110	Prom.	No
12	300	100	Prim.	65	—	HF	3,000	3,000	Succ.	Yes
13	2,200	100	Prim.	60	30	HF	6,500	6,500	Succ.	Yes
11	24,000	100	Steam flood	—	—	JS	125	25	TETT	TETT
13	40	210	Steam flood	50	30	HF	100	30	Disc.	No
14	1,000	81	Prim.	71	—	NC	650	650	Succ.	—

Another jump in chemical EOR projects

Operator	Field	State	County	Start date	Area, acres	Number wells		Pay zone	Formation type	Porosity, %	Permeability, md	Depth, ft
						Prod.	Inj.					
POLYMER												
American Petrofina	Garza	Tex.	Garza	10/82	120	8	4	San Andres	LS	19.8	4.1	2,900
American Petrofina	Westbrook	Tex.	Mitchell	12/80	4,740	146	39	Clearfork	LS	7.4	6.3	3,000
ARCO	So. Eunice/Langlie Mattix	N.M.	Lea	8/82	2,240	35	28	Seven Rivers Queen	S	11	1.3	3,700
ARCO	Healdton Area III	Okla.	Carter	10/83	1,500	198	40	Penn	S	23	115	1,000
ARCO	Horseshoe Gallup	N.M.	San Juan	11/83	450	10	8	Gallup	S	15	14	1,200
ARCO	East Texas (Kinney Strickland Leases)	Tex.	Gregg & Rusk	3/85	380	59	14	?	S	25	2,000	3,650
ARCO	Walnut Bend Unit I	Tex.	Cooke	11/83	2,891	23	16	Winger	S	17	103	5,500
ARCO	West Rozet	Wyo.	Campbell	9/84	120	4	1	Minnelusa	S	17	170	8,700
ARCO	West Nelson Rozet	Wyo.	Campbell	3/84	229	2	2	Minnelusa	S	17	170	8,700
ARCO	Camrick District	Okla.	Beaver	9/84	2,980	12	10	Upper Morrow	S	15	14	7,100
ARCO	Roehrs	Wyo.	Campbell	9/84	324	1	1	Minnelusa	S	17	92	7,465
Belnorth	Ruben	Wyo.	Sublette	12/70	800	12	6	Almy	S	14.1	1-56	3,300
Belnorth	McDonald Draw #4TB	Wyo.	Sublette	7/72	420	13	10	Almy	S	18	1-200	3,200
Belnorth	McDonald Draw #1TB	Wyo.	Sublette	1/72	435	1	1	Almy	S	16.7	2-59	3,050
Belnorth	Isenhour	Wyo.	Sublette	7/80	173	4	2	Almy	S	15-20	1-25	3,600
Belnorth	Long Island-Star Corral	Wyo.	Sublette	8/69	173	5	2	Almy	S	15.5	1-50	3,550
Belnorth	Saddle Ridge Unit	Wyo.	Sublette	12/74	376	9	8	Mesaverde	S	22	10-95	1,800
Belnorth	Tip Top Shallow Unit	Wyo.	Sublette	12/74	765	16	0	Almy/Mesaverde	S	12-20	1-200	1,150
Cenex	Sage Spring Creek-Unit A	Wyo.	Natrona	8/22/78	1,456	9	5	Dakota	S	13	50	7,400
Chevron	W. Bay	La.	Plaquemines	10/81	64	3	2	3A Sand	S	30	40	7,100
Chevron	W. Bay	La.	Plaquemines	10/81	42	4	1	3A Sand	S	34	4,600	7,100
Chevron	S. Stanley	Okla.	Osage	6/83	1,280	11	—	Burbank	S	18	300	2,900
Chevron	N. Stanley	Okla.	Osage	3/81	810	4	—	Burbank	S	18	300	2,900
Chevron	C-Bar	Tex.	Crane	6/83	2,600	56	32	San Andres	Dolo.	10	6	3,500
Chevron	N. Ward Estes	Tex.	Ward	12/81	11,900	473	442	Yates	S	18	10	2,600
Chevron	McElroy	Tex.	Crane	10/82	1,230	86	38	Grayburg	Dolo.	15	37	2,800
Chevron	Dune	Tex.	Crane	3/82	410	26	14	San Andres	Dolo.	14	28	3,350
Chevron	Goldsmith 5600	Tex.	Ector	9/83	2,560	82	32	Clearfork	Dolo.	15	28	5,600
Cities Service	Hoof	Kan.	Graham	6/82	960	18	8	Lansing-Kansas City	LS	12	74-113	3,700
Cities Service	Beverly Hills/West Pico	Calif.	Los Angeles	12/84	221	44	11	Repetto/Main	S	26.6-28	77-193	6,800
Cities Service	Harmony Hill	Kan.	Rooks	10/84	130	5	3	Lansing-Kansas City	LS	12.5	—	3,130
CNG	S.W. Davis Unit	Okla.	Murray	8/83	540	17	4	Oil Creek	S	12.8	1-1,150	4,980
Conoco	Frannie	Wyo.	Park	9/85	2,020	75	39	Phosphoria-Tensleep	S	13.6	130	3,300
Conoco	South Elk Basin	Wyo.	Park	11/84	540	9	6	Embar-Tensleep	S	15.1	90	7,100
Conoco	Big Muddy	Wyo.	Converse	3/81	90	16	9	Wall Creek	S	19.5	52	3,180
Conoco	Vacuum-State #35 Lease	N.M.	Lea	3/83	240	8	9	Grayburg/San Andres	S/LS	10.9	13.7	4,500
Cox & Cox	Carthage	Okla.	Tex.	1/82	1,640	18	10	Morrow	S	19	200	4,500
Exxon	W. Yellow Creek	Miss.	Wayne	9/76	4,813	51	24	Eutaw	S	24	112	4,950
Exxon	Hewitt	Okla.	Carter	3/81	886	85	52	Hewitt	S	21	175	2,400
Gallagher Drilling	Stewart East	Wyo.	Campbell	7/82	200	4	1	Minnelusa	S	15.6	250	8,000
Grace	High Five	Mont.	Roseland	7/81	800	9	2	Stensvad	S	18	200	5,600
Gulf	W. Bay	La.	Plaquemines	10/81	64	3	1	3A Sand	S	30	40	7,100
Exxon	Roland	Ill.	White	1986	—	16	14	Chester	S	15.7	16-626	3,100
Exxon	Roland	Ill.	White/Gallatin	1985	—	12	8	Chester	S	19.5	113-279	3,000
Exxon	Camrick	Okla.	Beaver/Texas	1984	—	43	27	Upper Morrow	S	15	1-250	7,530
Exxon	Loudon	Ill.	—	1985	—	760	554	Chester	S	19	30-500	1,800
Exxon	Conroe	Tex.	Montgomery	1985	—	—	—	2B	S	—	50-5,500	4,900
Exxon	Webster	Tex.	Harris	1985	—	7	3	Frio 1A	S	28	206	5,900
Exxon	Trapp	Kan.	Russell	1984	—	15	9	Lansing-Kansas City	LS	18.4	0.1-300	3,215
Exxon	Omaha	Ill.	Gallatin	1984	—	15	4	Chester	S	18	20-387	1,950
Gulf	W. Bay	La.	Plaquemines	10/81	42	4	1	3A Sand	S	34	4,600	7,100
Gulf	S. Stanley	Okla.	Osage	6/83	1,280	11	—	Burbank	S	18	300	2,850-2,900
Gulf	N. Stanley	Okla.	Osage	3/81	810	4	—	Burbank	S	18	300	2,850-2,900
Gulf	C-Bar	Tex.	Crane	6/83	2,600	56	32	San Andres	Dolo.	10	6	3,500
Gulf	N. Ward Estes	Tex.	Ward	12/81	11,900	473	442	Yates	S	18	10	2,600
Gulf	McElroy	Tex.	Crane	10/82	1,230	74	28	Grayburg	Dolo.	15	37	2,800
Gulf	Dune	Tex.	Crane	3/82	410	26	14	San Andres	Dolo.	14	28	3,350
Gulf	Goldsmith 5600	Tex.	Ector	9/83	2,560	82	32	Clearfork	Dolo.	15	28	5,600
Hunt	East Texas	Tex.	Rusk	8/1/82	508	87	14	Woodbine	S	25	300	3,500
Inexco	S. Heart Heath Sand Unit	N.D.	Stark	7/83	700	2	—	Tyler Heath	S	14.8	75	8,000
Kerr-McGee	Foster	Tex.	Ector	8/30/83	69	9	3	San Andres	Dolo.	15	7	4,475
Lawrence-Allison	NPR-3, Teapot Dome	Wyo.	Natrona	10/31/82	2.5	6	2	Shannon	S	18	63	550
Marathon	Yates	Tex.	Pecos	12/20/83	6,900	268	210	Queen Grayburg-San Andres	Dolo.	15	62	1,500
Marathon	Main Consolidated	Ill.	Crawford	7/81	130	25	14	Robinson	S	18	115	1,100
Marathon	Kinney Coastal	Wyo.	Wyoming Park & Big Horn Counties	11/27/84	1,500	32	22	Tensleep	S	11.2	50	4,240
Mobil	Postle, West Hough, Morrow Unit	Okla.	Texas	4/83	7,601	39	24	Morrow	S	15.7	45	6,500
Mobil	Postle, Hovey Morrow Unit	Okla.	Texas	9/82	7,881	34	17	Morrow	S	16.8	45	6,200
Mobil	Postle, Hough Morrow "A" Unit	Okla.	Texas	7/82	3,360	24	15	Morrow	S	15.8	45	6,200
Mobil	Postle, Postle Upper Morrow Unit	Okla.	Texas	11/82	3,994	29	19	Morrow	S	15.4	45	6,100
Mobil	Sho-Vel-Tum	Okla.	Stevens	8/82	350	20	11	Deese	S	16	4.5-123	4,000
Mobil	Cement	Okla.	Caddo	11/81	1,390	112	29	Fortuna Noble-Olson	S	19.2	23	2,100
Mobil	Cushing	Okla.	Creek	5/31/84	120	4	2	Bartlesville	S	19	290	2,700
Mobil	Golden Trend	Okla.	Garvin/Grady	10/85	800	14	4	Springer	S	12.5	58	9,400
Mobil	Cement	Okla.	Caddo	11/81	1,510	96	23	Fortuna Noble-Olson	S	19.2	18	2,000-3,200
Mobil	Fitts	Okla.	Pontotoc	7/82	1,520	148	87	Cromwell 60	S/LS	10-25	6-60	2,500-4,000
Mobil	Sho-Vel-[illegible]	Okla.	Carter	7/82	1,700	109	53	Deese	S	17.2	100	3,350
Mobil	Healdton	Okla.	Jefferson/Carter	7/81	1,045	151	41	Healdton	S	24.2	386	1,000
Mobil	Loudon	[illegible]	Fayette	11/82	[illegible]	24	23	Bendist Paint Creek	S	18.5	10-360	1,500

Table G

Reservoir oil				Residual oil saturation, %						
°API	cp	at °F	Previous prod.	Start	End	Project maturity	Total prod. b/d	Enhanced prod. b/d	Project eval.	Profit
36	2.5	90	WF	40	—	NC	—	—	NE	Yes
26	9.1	90	WF	50	—	HF	2,000	—	NE	Yes
35	2.6	90	WF	63	60	HF	500	25	Prom.	Yes
31	13	87	WF	37	35.5	JS	920	90	Succ.	Yes
42	1.7	87	WF	—	—	NC	500	—	Disc.	No
39	1.0	140	WF	—	—	JS	1,197	350	Succ.	Yes
32	2.8	143	WF	39	26	JS	550	25	Prom.	Yes
22	24	170	WF	—	—	JS	754	—	TETT	TETT
21	12	197	WF	—	—	JS	176	—	Prom.	Yes
39	1.5	149	WF	—	—	JS	290	—	TETT	TETT
25	9	177	WF	—	—	JS	14	5	Succ.	Yes
43	0.95	95	Prim.	42.0	45.4	NC	640	32	Succ.	Yes
41.8	1.45	95	WF	43.8	29.1	NC	215	11	Succ.	Yes
42	1.4	90	WF	40.3	36.7	NC	27	1	Succ.	Yes
41.5	1.2	100	Prim.	38.1	27.0	HF	190	12	Succ.	Yes
44	1.2	100	Prim.	43.6	23.9	NC	85	3	Succ.	Yes
44	2.33	85	WF	27.5	27.3	NC	200	12	Succ.	Yes
44	1.3	80	Prim.	41.3	36.9	Term 83	180	1	Disc.	No
36	1.4	160	WF	45	21	NC	500	200	Succ.	Yes
41	2.3	120	WF	36	32	HF	90	—	TETT	TETT
30	2.4	165	Prim.	65	—	HF	0	0		No
32	2.5	165	Prim.	54	—	HF	28	28	—	—
36	5	107	WF	51	—	HF	111	15	TETT	
36	5	107	WF	39	—	NC	185	75	Succ.	Yes
33	1.5	95	WF	76	—	JS	400	0	TETT	—
33	1.4	83	WF	74	—	JS	6,571	232	Prom.	Yes
32	3.5	95	WF	76	—	JS	1,746	447	Prom.	Yes
32	3.5	100	WF	87	—	JS	290	84	Prom.	Yes
40	1	105	WF	73	—	JS	1,120	200	TETT	Yes
26-32	1	200	WF	37.5	—	JS	2,250	75	Prom.	TETT
38.6	3.7	105	Prim.	49	34	JS	85	40	Prom.	Yes
39	1.1	108	WF	6.2	—	JS	2,100	—	TETT	TETT
26.3	15	95	Prim/WF	—	—	JS	—	—	Prom.	TETT
29	6.0	140	Prim/WF	—	—	HF	—	—	Prom.	TETT
34	5.6	118	Prim/WF	—	—	Term (10/85)	—	—	Disc.	No
37	1.3	101	Prim/WF	—	—	HF	—	—	Succ.	Yes
39	2.8	120	WF	51	—	HF	800	250	Prom.	Yes
20	20	150	WF	84	75	NC	—	—	Succ.	Yes
35	8.7	96	WF	43	—	HF	—	—	Prom.	Yes
20	20	124	Prim.	94	60	JS	300	250	Succ.	Yes
40	—	140	Prim.	—	—	JS	480	—	TETT	Yes
30.3	2.44	165	Prim.	65	—	HF	—	—		
36	10	87	WF	—	—	JS	—	—	TETT	TETT
32	10	83	WF	—	—	JS	—	—	TETT	TETT
39	1.5	142	WF	—	—	JS	—	—	TETT	TETT
36	6	75	WF	—	—	JS	—	—	TETT	TETT
—	—	—	Prom.	—	—	JS	—	—	TETT	TETT
29	1.3	165	WF	—	—	JS	—	—	TETT	TETT
38	1.4	97	WF	—	—	JS	—	—	TETT	TETT
28	17	78	WF	—	—	JS	—	—	TETT	TETT
31.8	2.48	165	Prim.	54	—	HF	—	—		
36.6	4.8	107	WF	51.5	—	HF	—	—		
36.6	4.8	107	WF	51.5	—	HF	—	—		
33	1.5	95	WF	76	—	NC	—	—		
33	14	83	WF	74	—	JS	—	—		
32	3.5	95	WF	76	—	JS	—	—		
32	3.5	100	WF	87.5	—	JS	—	—		
40	0.85	105	WF	73	—	JS	—	—		
37	1.9	142	Prim.	57	33	HF	950	750	Succ.	Yes
42	2.82	190	WF	20.2	41.4	Term 8/85	230	—	Disc.	No
34	3	100	WF	53	—	Term	—	—		
33	10	65	Prim.	40	29	HF	16	0	NE	—
30	5.5	82	Prim.	—	—	JS	27,283	—	Succ.	Yes
30	18.0	70	Prim.	51	—	NC	30	30	Disc.	No
22.1	20	140	Prim/WF	—	—	JS	1,500	—	TETT	TETT
40	1.03	145	WF	43	41	NC	1,050	0	Disc.	Yes
41	1.03	146	WF	45	44	NC	1,150	0	Disc.	Yes
41	1.03	147	WF	39	37	NC	800	0	Disc.	Yes
40	1.03	147	WF	40	38	NC	700	0	Disc.	Yes
31	5.6	105	WF	36	—	HF	91	5	Succ.	Yes
34	6.2	112	WF	51.9	—	Term	237	0	Disc.	No
39	4	94	WF	31	—	JS	137	60	Prom.	No
38	3	160	WF	49	—	JS	200	—	TETT	TETT
35	5	112	WF	3.4	—	HF	480	163	Succ.	Yes
40	4	115	WF	57	—	HF	8,585	980	Succ.	Yes
30-38	3.5-10	102	WF	52.4	—	HF	1,477	74	Succ.	Yes
32	10	84.2	WF	46.2	—	HF	785	118	Succ.	Yes
37	4	100	WF	49	47	HF	123	15	Prom.	Yes

Another jump in chemical EOR projects ... continued

Operator	Field	State	County	Start date	Area, acres	Number wells		Pay zone	Formation type	Porosity, %	Permeability, md	Depth, ft
						Prod.	Inj.					
Mobil	Sho-Vel-Tum	Okla.	Stephens	5/81	160	32	12	Permian	S	20	130	750
Mobil	Sho-Vel-Tum	Okla.	Carter	8/82	451	30	6	Deese	S	20	192	3,900
Mobil	Sho-Vel-Tum	Okla.	Stephens	11/82	1,980	100	43	Deese	S	17.4	44.8	4,900
Marathon Oil	Grass Creek	Wyo.	Hot Springs	10/28/85	740	40	18	Phosphoria-Tensleep	S/LS	33	132	4,000
Marathon Oil	Oregon Basin-North Embar Tensleep	Wyo.	Park	11/26/83	3,000	152	79	Embar-Tensleep	S/LS	35	261	3,445
Marathon Oil	Byron	Wyo.	Big Horn	12/27/82	1,500	50	38	Embar-Tensleep	S/LS	13.9	4.5-78	5,600
Marathon Oil	Oregon Basin-SETPA	Wyo.	Park	1/15/85	375	4	2	Minnelusa	S	16.5	100	6,300
Mericle	Chico Martinez	Calif.	Kern	1981	300	—	—	Tulare	S	41.9	—	2,000
Meridian Oil	Deadman Creek Unit	Wyo.	Crook	6/80	375	4	2	Minnelusa	S	16.5	100	6,300
Mitchell Energy	Jacksboro, S.	Tex.	Jacksboro	5/8/82	270	10	7	Strawn	S	19.9	86	1,975
Mitchell Energy	Lucy, N.	Tex.	Borden	10/83	550	8	4	Pennsylvanian	LS	9.7	30	7,640
Mitchell Energy	Alba Northeast Unit	Tex.	Wood	7/11/80	410	21	7	Sub-Clarksville	S	21.4	471	4,100
Mitchell Energy	Alba Southeast	Tex.	Wood	2/1/72	731	18	9	Sub-Clarksville	S	23.3	524.5	4,200
Mobil	Sho-Vel-Tum	Okla.	Carter	10/82	450	21	14	Deese	S	17	45-860	3,500
Mobil	Sho-Vel-Tum	Okla.	Carter	7/82	2,750	136	56	Tatums Stray Pennington	S	22.3	787	2,750
Mobil	Cement	Okla.	Caddo	9/81	1,120	71	23	Fortuna/ Noble Olson	S	36.1	74	2,400-3,325
Mobil	Sho-Vel-Tum	Okla.	Stephens	8/82	1,360	71	52	Deese Springer	S	18.1	66	4,400
National Cooperative Refinery Assoc. (NCRA)	Stewart Ranch	Wyo.	Campbell	2/72	1,200	15	15	Minnelusa	S	16.5	92	8,100
Osborn Heirs	Tholson	Wyo.	Campbell	12/82	9,000	7	1	Minnelusa	S	21	460	9,000
Petromac Inc.	Slocum	Tex.	Elkhart	4/85	118	2	2	Woodbine	S	24	200	5,800
Phillips	Vacuum	N.M.	Lea	8/83	320	11	8	San Andres	Dolo	12	20	4,500
Phillips	Lick Creek	Ark.	Bradley-Union	9/84	1,640	39	23	Meakin	S	30.3	1,200	2,500
Phillips	Bates	Kan.	Sumner	1/84	640	14	2	Mississippi	LS	15.5	19.7	3,700
Phillips	North Burbank	Okla.	Osage	3/83	1,440	58	23	Burbank	S	15.5	50	2,900
Phillips	North Burbank	Okla.	Osage	9/80	1,440	84	36	Burbank	S	15.5	50	2,900
Phillips	South Burbank	Okla.	Osage	7/82	720	34	23	Burbank	S	19.5	150	2,750
Phillips	Golden Trend	Okla.	Grady	10/83	720	4	4	Springer	S	9.7	58	9,800
Phillips	South Cowden	Tex.	Ector	9/83	2,050	57	24	Grayburg	Dolo	11.9	3.7	4,750
Samedan	S. Robertson	Tex.	Gaines	1/81	1,600	56	11	Glorieta/Clfk	Dolo	7.9	5	5,800
Samedan	Kuehne Ranch Unit	Wyo.	Campbell	3/81	645	5	2	Minnelusa	S	14.4	52.8	7,900
Shell	Sholem-Alechem	Okla.	Stephens	8/20/84	430	11	—	Deesa Sand	S	20	50	3,200
Shell	Big Mineral Creek-Barnes Sand Unit	Tex.	Grayson	12/1/84	1,065	20	—	Barnes Sand	S	18.5	59	5,000
Shell	Big Mineral Creek-S Sand Unit	Tex.	Grayson	5/15/85	1,600	12	—	S. Sand	S	13	28	5,200
Sun	Red River Bull Bayou	La.	DeSoto Parish	2/81	—	24	31	Paluxy	S	31.0	10-10,000	2,400
Southland Royalty	Foster	Tex.	Ector	5/83	240	24	12	San Andres	Dolo	12	5.8	4,200
Mobil	Sho-Vel-Tum	Okla.	Stephens	11/82	1,980	100	43	Deese	S	17.4	44.8	4,900
Mobil	Sho-Vel-Tum	Okla.	Stephens/Carter	12/82	1,285	32	8	Springer	S	15.4	17.9	5,200
Mobil	Sho-Vel-Tum	Okla.	Carter	7/82	780	35	29	Deese	S	18.8	95.3	3,500
Sun	Stephens County Regular	Tex.	Stephens	2/80	700	12	12	Caddo	LS	14.2	11	—
Sun	Stephens County Regular	Tex.	Stephens	—	3,900	75	64	Caddo	LS	—	—	—
Sun	Fitts	Okla.	Pontotoc	1982	3,030	125	111	Viola	LS	13.6	1.35	—
Sun	Hitts Lake	Tex.	Smith	10/80	—	29	5	Paluxy	S	18.9	300	7,250
Terra	Kummerfeld Minnelusa Sand Unit	Wyo.	Crook	5/75	712	4	5	Minnelusa	S	16.5	15-95	7,600
Tesoro	Elaine (San Miguel)	Tex.	Dimmit	12/8/81	1,260	21	17	San Miguel	S	21.7	6	4,450
Tesoro	Hospah Sand Unit	N.M.	McKinley	1/16/83	1,061	44	17	Upper Hospah	S	24.7	467	1,600
Tesoro	S. Hospah Lower Sand Oil Pool	N.M.	McKinley	10/1/83	594.6	50	10	Lower Hospah	S	27.3	1,282	1,600
Texaco	Ventura	Calif.	Ventura	3/83	800	95	56	C-Block	S	20.0	130	5,500
Texaco	Richfield	Calif.	Orange	12/78	200	44	26	Chapman	S	29	760	2,917
Texaco	Richfield	Calif.	Orange	5/83	52	42	16	Kraemer	S	24	300-500	4,100
Texaco	Black Diamond	Tex.	Jim Hogg	4/27/83	200	5	3	Pettus II	S	25	212	4,550
Texaco	Jordan	Tex.	Ector & Crane	11/84	1,513	82	30	San Andres	Dolo	10.5	6	3,600
Texaco	Penwell	Tex.	Ector	11/84	4,470	137	36	San Andres	Dolo	7.8	2.2	3,600
Texaco	Cogdell	Tex.	Kent & Scurry	6/83	15,378	107	126	Canyon Reef Limestone	LS	9.6	5.0	6,800
Texaco	Spraberry, Deep	Tex.	Dawson	7/83	2,368	15	11	Spraberry Lwr. Sand	S	16.3	5.7	7,100
Texaco	Spraberry, Deep	Tex.	Dawson	7/83	2,368	15	11	Spraberry Lwr. Sand	S	16.3	5.7	7,100
Texaco	Spraberry, Deep	Tex.	Dawson	7/83	2,448	18	20	Upper Spraberry Sand	S	17.9	10.6	6,500
Texaco	Mabee	Tex.	Andrews/Martin	12/81	13,500	286	277	San Andres	Dolo	10.5	1.5	4,700
Texaco	Cowden, North	Tex.	Ector/Andrews	12/84	2,440	60	61	Grayburg/San–Andres	S/LS Dolo	10.1	3.8	4,450
Texaco	McElroy	Tex.	Crane/Upton	10/81	7,550	518	333	Grayburg/San Andres	Dolo	11	5	3,000
Texaco	Flowers	Tex.	Stonewall	8/83	5,876	155	67	Canyon	S	14.7	2	4,200
Texaco	Langlie Mattix	N.M.	Lea	2/83	9,360	124	110	Queen & Seven Rivers	S	11.4	7.2	3,650
Texaco	Levelland	Tex.	Hockley	4/83	3,595	108	37	San Andres	Dolo	9.08	0.6	4,720
Texaco	Vacuum Grayburg-San Andres	N.M.	Lea	12/81	1,486	37	29	Grayburg/San Andres	Dolo	11.0	18	4,720
Texaco	Vacuum Grayburg/San Andres	N.M.	Lea	4/83	3,046	77	81	Grayburg/San Andres	Dolo	11.55	13	4,720
Texaco	Slaughter	Tex.	Cochran	2/27/84	1,887	33	15	San Andres	Dolo	11.2	6.02	5,000
Texaco	Slaughter	Tex.	Cochran	12/81	7,406	278	91	San Andres	Dolo	10.7	3.0	5,000
Texaco	Robertson North	Tex.	Gaines	9/83	1,400	30	16	Glorieta	Dolo	7.7	1.54	5,809
Texaco	Harris	Tex.	Gaines	10/83	3,800	80	80	Glorieta	Dolo	8.6	3.0	5,818
Texaco	Cushing	Okla.	Creek	12/83	480	14	—	Bartlesville	S	17	100	2,670
Texaco	Sho-Vel-Tum	Okla.	Stephens	4/85	3,740	87	54	Sims	S	19.1	190	4,000-7,000
Texaco	Hoxbar	Okla.	Carter	4/12/84	220	8	5	Hoxbar	S	21	84	2,400
Texaco	Sho-Vel-Tum	Okla.	Carter	2/83	225	15	8	Deese	S	17	59	4,400

Table G

Reservoir oil				Residual oil saturation, %						
°API	cp	@ °F	Previous prod.	Start	End	Project maturity	Total prod. bo/d	Enhanced prod. bo/d	Project eval.	Profit
29	50	69	WF	49	—	HF	188	85	Succ.	Yes
34	10.5	89	WF	53	—	HF	600	85	Succ.	Yes
26	13.6	120	WF	47	—	HF	764	156	Succ.	Yes
24	15	119	Prim/WF	—	—	JS	2,700	—	TETT	TETT
22.5	8.2	108	Prim/WF	—	—	HF	15,200	2,230	Succ.	Yes
23	17	121	Prim/WF	—	—	HF	5,400	795	Succ.	Yes
21	34	120	Prim/WF	66.5	47.5	HF	350	50	Succ.	Yes
12	—	70	Prim.	—	—	JS	—	—	—	
21	34	120	Prim/WF	66.5	47.5	HF	350	50	Succ.	Yes
40	1.73	100	Prim.	50	28	NC	356	356	Succ.	Yes
40	0.44	140	Prim.	52.6	35.7	JS	280	175	TETT	TETT
15.1	75	150	WF	62.6	58.7	HF	104	104	Disc.	—
15.5	75	150	Prim.	69.5	60.7	HF	196	196	Succ.	Yes
28	20	80	WF	49	—	HF	170	33	Succ.	No
25	68	83	WF	48	—	HF	1,866	393	Succ.	Yes
35	6	90-95	WF	57	—	HF	683	115	Succ.	Yes
30	16	117	WF	55	—	HF	1.108	179	Succ.	Yes
20	25	136	WF	68	49	NC	1,167	1,167	Succ.	Yes
22	8	185	WF	49.2	46.7	Term 4/85	300	0	NE	Yes
44	0.7	175	WF	50	30	JS	70	70	Prom.	Yes
37	1.2	101	Prim.	74.9	58.2	HF	3,200	—	Prom.	Yes
17	160	118	Immiscible (02 WF)	55	46	HF	450	100	Succ.	Yes
42	0.6	117	WF	50	48	HF	200	—	TETT	TETT
39	3	120	WF	48	44	HF	350	75	Prom.	Yes
39	3	120	WF	53	47	HF	1,000	600	Succ.	Yes
39	3	120	WF	41	37	NC	250	25	Disc.	No
38	2.9	155	WF	54	53	HF	50	—	TETT	TETT
35	3.4	96	WF	67	59	HF	1,500	30	TETT	TETT
34	1	107	WF	64	NA	HF	2,041	—	Succ.	Yes
26	3	134	Prim/WF	—	—	HF	280	26	Succ.	Yes
28	10	100	WF	54	49	—	276	50	Succ.	Yes
37	1.5	120	WF	50	47	JS	580	—	TETT	No
37.9	1.67	124	WF	44	37	JS	811	—	TETT	TETT
41	2.07	120	WF	—	—	Term 5/1/85	—	—	Disc.	No
34	1.2	101	WF	—	—	Term				
26	13.6	120	WF	47	—	HF	764	156	Succ.	Yes
39	2.4	110	WF	50	—	HF	70	0	Prom.	Yes
30	15.7	112	WF	47.9	—	HF	491	166	Succ.	Yes
39	1.8	131	—	—	—	HF	211	—	—	—
39	1.8	131	WF	—	—	HF	2,751	—	Succ.	Yes
39	3.2	119	WF	—	—	HF	2,825	—	Succ.	Yes
26	2.713	210	WF	—	—	HF	1,251	—	Succ.	Yes
23	38	130	Prim/WF	55.3	44.9	HF	510	190	Succ.	Yes
36	3	140	—	80.2	67.0	HF	284	199	Succ.	Yes
30	13	95	WF	69.0	68.2	JS	248	35	Succ.	Yes
24	35	95	WF	82.5	65.9	JS	584	30	Succ.	Yes
30.5	1.3	160	WF	—	—	JS	6,300	—	TETT	TETT
18	57	117	WF	—	—	Term 4/1/85	956	—	Disc.	No
23	12-45	138	WF	—	—	Term 4/1/85	1,182	—	Disc.	No
48	0.4	164	Prim.	68	41	HF	485	427	Succ.	Yes
34	2.8	95	WF	54	53	JS	825	—	TETT	TETT
33	1.8	95	WF	54	53	JS	1,492	—	TETT	TETT
41.7	0.62	128	WF	28	26	HF	5,673	—	TETT	TETT
39.3	0.885	130	WF	42	34	HF	432	—	TETT	TETT
39.3	0.885	130	WF	42	34	HF	432	—	TETT	TETT
40.6	0.92	103	WF	37	34	HF	213	—	TETT	TETT
32.0	2.38	106	WF	43	38	HF	6,962	—	TETT	TETT
34	1.63	94	WF	47	45	JS	584	—	TETT	TETT
32	2.6	95	WF	59	33	HF	7,511	—	TETT	TETT
42	1.9	130	WF	40	35	HF	929	—	TETT	TETT
35	2.8	94	WF	50.7	46.2	HF	1.226	110	Prom.	Yes
30.5	1.47	107	WF	45	44	NC	2,356	0	TETT	TETT
38	1.47	105	WF	45	44	HF	3,941	0	TETT	TETT
38.0	1.47	105	WF	45	44	NC	9,222	0	TETT	TETT
31	1.47	110	WF	53	50	JS	428	0	TETT	TETT
31	1.47	107	WF	49.4	45.6	C	6,150	900	Succ.	Yes
30.8	0.67	—	WF	45	44	C	1,127	0	Prom.	TETT
30.8	3.1	—	WF	45	44	C	7,820	0	Prom.	TETT
41	2.5	100	WF	57	54	HF	171	21	Prom.	Yes
24-29	5	105-135	WF	50	47.1	JS	4,900	0	Prom.	Yes
33	10-	94	WF	39	37	HF	80	0	TETT	Yes
20-34	4.30	102	WF	38	37.2	NC	101	0	Disc.	Yes

Another jump in chemical EOR projects ... continued

Operator	Field	State	County	Start date	Area, acres	Number wells		Pay zone	Form-ation type	Porosity, %	Permea-bility, md	Depth, ft
						Prod.	Inj.					
Texaco	Blue Buttes	N.D.	McKenzie	12/85	12,770	37	21	Madison	LS	9.6	22	9,400
Texaco	Balko South	Okla.	Beaver City	8/82	1,320	8	10	Kansas City	LS	21	0-1,070	6,100
Texaco	Atlantic	Okla.	Osage	5/31/85	1,920	43	13	Mississippi Chat & Burgess	S	25	25	2,500
Texaco	Apache Pool	Okla.	Caddo	9/83	1,060	19	7	Bromide	S	13.6	350	3,900
Texaco	Aneth Unit	Utah	San Juan	9/85	17,000	154	173	Paradox	LS	10.6	18.3	5,300
Toco Corp.	Clareton	Wyo.	Weston	10/85	200	6	1	Newcastle	S	15-18	1-15	6,000
Toco Corp.	Mush Creek	Wyo.	Weston	1969	900	8	6	Newcastle	S	15-18	1-15	4,400
Unocal	Dos Cuadras	Calif.	Santa Barbara	6/83	320	29/21	10/10	EP/FP	S	31/27	680/260	1,280/ 1,650
Unocal	Orcutt	Calif.	Santa Barbara	6/84	1,350	74	41	Pt. Sal	S	22.5	78	3,750
Unocal	Farnsworth	Tex.	Ochiltree	9/83	13,005	39	41	Morrow	S	14.5	21.8	7,400
Unocal	Osage-Hominy	Okla.	Osage	4/83	2,880	84	33	Miss. Chat	Chertacous Limestone	30	27	2,880
Unocal	Healdton	Okla.	Carter	12/82	2,010	83	80	Healdton Sands	S	26.2	346	800
Unocal	Southwest Van Unit	Tex.	Van Zandt	9/84	529	28	25	Lewisville	S	26	100	2,600
Unocal	Howard Glasscock	Tex.	Howard	1/17/83	169	12	2	Queen	S	22	37	1,600
Texaco	Sho-Vel-Tum	Okla.	Carter	1/83	1,390	85	39	Hoxbar Deese	S	20.3	200	3,100
Texaco	Tonti	Ill.	Marion	10/84	285	10	11	Renoist Auxvases McClusky	LS	47.3	358	1,900-2,200
Texaco	Sumatra	Mt.	Rosebud	12/84	4,778	27	20	Tyler	S	15.3	48	4,900
Texaco	Sho-Vel-Tum	Okla.	Stephens	6/84	150	15	13	Permian	S	25.3	128	1,100
Texaco	Salem	Ill.	Marion	7/82	8,800	330	244	Mississippian & Devonian	S	10.5-17.9	5-2,200	1,700-3,600
Texaco	Naval Reserve	Okla.	Osage	2/82	3,360	120	64	Bartlesville	S	15.8	12	2,650
Texaco	Loudon	Ill.	Fayette	12/28/84	800	18	12	Weiler	S	21	142	1,550
Texaco	Hewitt	Okla.	Carter	7/31/84	1,200	58	38	Lone Grove	S	18	50	4,500
Texaco	Sho-Vel-Tum	Okla.	Stephens	8/81	190	6	5	Deese	S	17.4	216	5,500
Texaco	Hewitt	Okla.	Carter	11/85	100	6	3	Lone Grove	S	18	50	4,000
Texaco	Hewitt	Okla.	Carter	8/82	300	15	9	Hoxbar	S	19	270	2,350
Texaco	Hewitt	Okla.	Carter	3/22/84	240	10	5	Hoxbar-	S	21	100	2,600
Texaco	Glenn Pool	Okla.	Creek	1/84	480	18	8	Bartlesville	S	19.5	400	1,500
Texaco	Sho-Vel-Tum	Okla.	Carter	5/85	570	27	24	Deese	S	17	70	3,500
Texaco	Dale	Ill.	Hamilton	11/85	4,100	35	19	Aux Vases	S	14.5	68	2,500
Texaco	Carthage, N.E.	Okla.	Texas	4/83	1,024	7	6	Morrow "A"	S	18.6	92	4,400
Unocal	Smyer	Tex.	Hockley	11/8/84	4,410	72	38	Clearfork	Dolo	8.25	1-20	5,900
Unocal	North Riley	Tex.	Gaines	2/84	6,720	105	40	Clearfork	Dolo	7.7	12	6,300
Unocal	South Cowden	Tex.	Ector	1/86	1,600	38	—	Grayburg	Dolo	8.5	3.1	4,500
Unocal	Dollarhide (Clearfork)	Tex.	Andrews	10/85	2,800	57	33	Clearfork	Dolo	11.6	8.5	6,500
MICELLAR-POLYMER												
Amoco	Torchlight	Wyo.	Big Horn	1981	6.4	1	4	Tensleep	S	14.2	61	3,100
Chevron	Berry Hill (Kiefer)	Okla.	Creek	9/82	82	32	21	Glenn	22S	20	150	1,450
Cities Service	Madison	Kan.	Greenwood	8/82	40	25	16	Bartlesville	S	18.9	42	1,900
Cities Service	Eldorado	Kan.	Butler	6/74	51.2	8	19	Admire	S	24	208-265	650
Gary	Bell Creek "A"	Mont.	Powder River	2/81	179	16	9	Muddy	S	24.9	1,218	4,500
Gary	Bell Creek Unit "A"	Mont.	Powder River	10/77	160	9	4	Muddy	S	27.0	1,050	4,650
Gary	S. Johnson	Ill.	Clark	6/81	49	36	22	Partlow	S	18.3	302	475
Gulf	Kiefer	Okla.	Creek	9/82	82	32	21	Glenn	S	20	150	1,450
Marathon	Lawrence-Robins 202-B Project	Ill.	Lawrence	10/85	1.25	1	—	Bridgeport Main	S	20.6	352	900
Marathon	Lawrence Robins 102 B Maraflood	Ill.	Lawrence	8/82	25	12	5	Bridgeport	S	21	398	950
Marathon	Main Consolidated M-2 Project	Ill.	Crawford	7/80	331	72	53	Robinson	S	19	150	1,000
Marathon	Main Consolidated M-1 Project	Ill.	Crawford	2/77	407	132	114	Robinson	S	19	102	1,000
Marathon Oil	Main Consolidated 119-R Project	Ill.	Crawford	9/68	40	27	18	Robinson	S	20	200	1,000
Mobley, O.B.	Wesgum	Ark.	Ouachita	6/80	130	3	1	Smackover	LS	26.7	36	5,800
Mobley, O.B.	Lewisville	Ark.	Lafayette	7/80	458	8	3	Smackover	LS	21.8	24	6,800
Phillips	N. Burbank	Okla.	Osage	1975	90	16	9	Burbank	S	15.5	50	2,900
Pennzoil	Bradford	Pa.	McKean	7/82	220	57	—	Bradford 3rd	S	21	188	1,900
Texaco	Sho-Vel-Tum	Okla.	Stephens	8/83	8.75	4	3	Sims	WF	17	83	7,000
Texaco	Main Consolidated	Ill.	Crawford	12/81	10.88	9	4	Robinson	WF	21.8	100	1,040
Texaco	Salem Consolidated	Ill.	Marion	8/81	60	20	12	Benoist	S	15.4	154	1,750
Unocal Corp.	East Coalinga Extension	Calif.	Fresno	12/80	20	9	4	Gatchell	S	14.2	150	7,500
Woodstock Oil Corp.	Wizard Wells (4,900 ft Caddo)	Tex.		1981	700	11	—	Caddo	S	14	50	4,900
ALKALINE												
Chevron	Whittier	Calif.	Los Angeles	2/28/83	373	25	—	2nd & 3rd Zones	S	28	350	2,300
Chevron	Whittier	Calif.	L.A.	2/83	373	25	—	2nd & 3rd Zones	S	28	350	2,300
Chevron	Bison Basin	Wyo.	Fremont	7/80	190	16	6	Frontier	S	22	144	1,300
Chevron	Quarantine Bay	La.	Plaquemines	11/81	200	5	3	3 (RB/SU	S	27	50-2,000	8,200
Conoco	San Miguelito	Calif.	Ventura	11/82	316	17	14	Third Grubb	S	15.1	36	8,011
Gulf	N. Ward Estes	Tex.	Ward	7/77	40	8	1	Yates	S	21	39	2,700
Gulf	N. Ward Estes	Tex.	Ward	7/77	40	8	1	Yates	S	20	9	2,450
Gulf	Toborg	Tex.	Pecos	4/80	5	1	4	Toborg	Congl	20	216	350
Gulf	Bison Basin	Wyo.	Fremont	7/80	190	16	6	Frontier	S	22	144	1,300
Gulf	Quarantine Bay	La.	Plaquemines	11/81	200	5	3	3(RB/SU	S	27.4	50-2,000	8,200
Phillips	Huntington Beach	Calif.	Orange	6/78	65	8	4	Lower Main	S	24	150	3,800
Superior	Torrance	Calif.	Los Angeles	6/81	604	45	21	Main	S	31	220	3,500
Thums (City of Long Beach)	Wilmington	Calif.	Los Angeles	12/80	5	4	1	Tar	—	31.7	1,000	3,000
Unocal	Orcutt	Calif.	Santa Barbara	7/81	170	17	6	Pt. Sal	S	22.5	78	3,750
Unocal	South Varf Unit	Tex.	Van Zandt	9/9/80	800	14	10	Lewisville	S	26	100	2,600
Unocal	Carroll Unit	Tex.	Van Zandt	11/81	212	7	6	Lewisville	S	26	100	2,600

Table G

°API	Reservoir oil cp	Reservoir oil in °F	Previous prod.	Residual oil saturation, % Start	Residual oil saturation, % End	Project maturity	Total prod. b/d	Enhanced prod. b/d	Project eval.	Profit
42	0.3	240	WF	41	40	JS	2,000	0	TETT	Yes
40	1.8	125	WF	40	38.3	NC	78	28	Disc.	Yes
39	4	95	WF	34	32	HF	220	0	Prom.	Yes
39	3.2	96	WF	36	25	HF	770	0	Prom.	Yes
47	0.55	134	WF	52	46	JS	6,534	0	TETT	Yes
40	—	160	Prim.	—	—	JS	5	0	TETT	TETT
40	—	115	Prim.	—	—	NC	80	80	Succ.	Yes
25/26	24/15	95/103	WF	54/59	44/47	JS	3,700	0	TETT	TETT
23.5	4	168	WF	46	40	NC	1,850	0	TETT	TETT
38	1.0	141	WF	43	40	HF	968	10	Prom.	Yes
39	3	100	WF	51	48	HF	1,100	120	Prom.	Yes
33	10	80	WF	56	47	HF	1,000	100	Succ.	Yes
35	2.3	130	WF	—	—	JS	1,000	30	TETT	Yes
32	10	90	WF	50.7	43.4	JS	72	25	Succ.	Yes
25.	20	95	WF	49	47.8	HF	1,088	128	Prom.	Yes
39.5	4	83	WF	30.9	28.5	HF	100	10	Prom.	Yes
33.4	4.8	159	WF	29.8	28.7	HF	568	0	Prom.	Yes
28	50	90	WF	48.9	47.8	JS	250	0	Prom.	Yes
40	3-4.4	82-104	WF	27.7	27.5	HF	3,810	400	Prom.	Yes
38	3.5	90	WF	27.2	26.7	HF	580	150	Succ.	Yes
37	5	88	WF	21	20	NC	84	0	Prom.	Yes
35	4	115	WF	54	52	HF	370	0	Prom.	Yes
22	60	124	Prim.	64	56	NC	130	120	Succ.	Yes
30	4.3	115	WF	39	37	JS	70	0	TETT	TETT
35	6	98	WF	40	39.8	NC	51	5	Succ.	Yes
35	8	92	WF	45	44	NC	85	0	Disc.	Yes
37	6	90	WF	60	58	HF	114	0	TETT	Yes
34	10	110	Prim.	57	55	JS	120	0	Prom.	TETT
36	4	100	WF	34	31	JS	130	0	TETT	TETT
40	2	113	WF	45	44.5	NC	200	70	Succ.	Yes
27	5	112	WF	49.3	43.5	JS	1,450	—	TETT	TETT
32	2.55	104	WF	58	48	JS	3,400	—	TETT	TETT
34	3.5	103	Prim. WF	43.6	42.4	JS	720	—	TETT	TETT
37	0.56	110	WF	55.5	46.9	JS	1,657	—	TETT	TETT
34.4	41.2	100	WF	36	—	HF	5	2	TETT	No
39	4.4	100	WF	50	—	JS	160	155	TETT	NO
38	2.9	97	Prim.	34	—	NC	40	40	NE	No
37	4	69	Prim. WF	33	—	Term. 11/30/82	30	30	Disc.	No
32	7	110	WF	33	21.5	NC	425	425	Succ.	Yes
32	7	110	WF	35	25	Term. 8/82	40	40	Disc.	No
30	20	65	WF	46	28	HF	130	100	TETT	No
39	4.4	100	WF	50	—	JS		—		
29	18	70	WF	45	—	JS	20	20	TETT	TETT
29	18	70	Prim. WF	45	—	JS	50	50	TETT	TETT
35	7	70	Prim. WF	40	—	JS	50	50	TETT	TETT
36	6	70	Prim. WF	40	—	NC	200	200	Prom.	No
35	7	70	Prim. WF	40	25	Term. (12/76)	0	0	Prom.	No
21	11	185	WF	96	—	—	96	—	NE	TETT
43	0.323	191	WF	87	—	—	482	11	NE	TETT
39	3	120	WF	30	18	NC	75	20	Prom.	Yes
45	5	68	Prim.	40	22	JS	60	0	TETT	NA
28	12	135	WF	50	45	NC	68	68	Disc.	No
31	16	85	WF	40	33.6	NC	42	32	Disc.	No
36	36	72	WF	30.5	15.3	HF	180	180	Prom.	No
31.4	2.2	200	Prim.	43	10	NC	200	0	Disc.	No
42	1.2	130	Prim.	82	28	HF	50	50	Succ.	Yes
26	30	120	WF	27	22	—		—		
20	30	120	JS	175	175	TETT	—			
16	220	85	Prim.	—	—	HF	198	90	Prom.	—
33	5	182	Prim.	51	—	HF	Not Active	Not Active	Disc.	No
31	0.7	205	Prim. WF	70	55	NC	940	—	Prom.	TETT
33	1.4	83	WF	48	—	Term. 12/82	—	—		—
33	1.4	83	WF	86	—	Term. 7/83	—	—		—
22	82	76	WF	80	—	Term. 12/82	—	—		—
16	229	85	Prim.	—	—	HF	—	—		—
33.2	4.85	182	Prim.	51	—	HF	—	—		—
22	15	165	WF	42	40	NC	325	60	Disc.	Yes
21	17	165	WF	40.7	39.6	JS	2,450	—	Prom.	[illegible]
12	1,000	104	Prim.	97	50	Term. 85	70	60	Disc.	No
23.5	4	168	WF	46	44	Term. 8/84	500	50	Disc.	No
35	2.3	130	WF	—	—	NC	143	5	Succ.	Yes
33	2.3	130	WF		—	NC	33	1	Succ.	Yes

CO_2, other gases continue gains

Operator	Field	State	County	Start date	Area, acres	Number wells Prod.	Number wells Inj.	Pay zone	Formation type	Porosity, %	Permeability, md	Depth, ft
CO_2 MISCIBLE												
Amcco	North Cowden Unit	Tex.	—	—	12	2	6	Grayburg	Dolo/LS	10	5.4	—
Amoco	Slaughter	Tex.	Hockley	12/84	5,700	—	—	San Andres	Dolo/LS	13	7	4,950
Amoco	Slaughter	Tex.	Hockley	12/84	1,600	64	37	San Andres	Dolo/LS	10	4	4,950
Amoco	Wasson		Yoakum	12/84	7,800	316	250	San Andres	Dolo/LS	9	5	5,100
Amoco	Levelland	Tex.	Hockley	3/73	13.2	2	6	San Andres	Dolo	11.5	3.5	4,900
Amoco	Levelland	Tex.	Hockley	8/78	15	1	4	San Andres	Dolo	11.8	3.8	4,900
Amoco	Slaughter	Tex.	Hockley	11/72	12.2	2	6	San Andres	Dolo	10.5	4.3	4,950
Arco	Sho-Vel-Tum	Okla.	Stephens	9/82	1,100	65	43	Sims	S	16	70	6,200
Arco	Garber	Okla.	Garfield	10/81	80	9	4	Crew Sand	S	19	12	1,900
Arco	North Coles Levee	Calif.	Kern	6/1/81	70	8	3	Stevens Sand	S	19.5	9	9,000
Arco	Sable	Tex.	Yoakum	3/84	825	31	11	San Andres	Dolo	8.4	1.5	5,200
Chevron	SACROC Unit	Tex.	Scurry	1/72	49,900	887	379	Canyon Reef	LS	3.93	19.4	6,700
Chevron	Pittsburg	Tex.	Camp	6/85	43	4	1	Pittsburg	Limey Sand	11	2.4	8,000
Chevron	University Waddell	Tex.	Crane	5/83	920	50	13	Devonian	Dolo	12	14	8,500
Chevron	Kurten	Tex.	Brazos	8/81	672	5	4	Woodbine	S	12	0.4	8,300
Chevron	Quarantine Bay	La.	Plaquemines	10/81	57	4	1	4 Sand Reservoir	S	30	100-1,000	8,120
Chevron	Heidelberg	Miss.	Jasper	12/83	40	1	—	Eutaw	S	25	74	5,060
Chevron	Pittsburgh	Tex.	Camp	11/83	120	5	1	Sub-Clarksville	S	23	460	3,800
Cities Service	Welch	Tex.	Dawson	2/8/82	2,675	129	132	San Andres	LS	9.25	9	4,890
Cities Service	Northwest Purdy	Okla.	Garvin	9/82	8,320	106	102	Springer	S	13	44	9,400
Conoco	Maljamar MCA unit	N.M.	Lea	5/83	5	198	107	Grayburg/San Andres	S/LS	11.0	18	3,665
Conoco	West Sussex Unit	Wyo.	Johnson	12/82	10	3	1	Shannon	S	19.5	121	3,040
Conoco	Ford Geraldine Unit	Tex.	Reeves & Culberson	2/81	3,850	198	123	Delaware	S	23	64	2,680
Exxon	Means (San Andres)	Tex.	Andrews	11/83	6,700	248	176	San Andres	LS	9	20	4,300
Grace Petroleum	South Bishop Ranch	Wyo.	Campbell	1/82	1,280	5	4	Minnelusa	S	15	150	9,400
Grace Petroleum	South Bishop Ranch	Wyo.	Campbell	1/82	640	5	2	Minnelusa	S	16	50	9,200
HNG Fossil Fuels	Twofreds	Tex.	Loving, Ward & Reeves	1/74	4,392	42	33	Delaware	S	19.5	32	4,900
Highland Resources	Rose City North	Tex.	Orange	4/81	800	9	5	Hackberry	S	37	4,500	8,200
Mitchell Petroleum Corp.	Alvord South Field	Tex.	Wise	1980	2,291	245	10	Caddo	Conglomerate	12.8	55	5,700
Mobil	McElmo Creek Unit	Utah	San Juan	2/28/85	13,440	170	100	Ismay, Desert Creek	LS	14	5	5,600
Pennzoil	Tinsley	Miss.	Yazoo	11/6/81	1,338	21	—	Perry	S	26.4	49	4,800
Phillips	Vacuum	N.M.	Lea	2/81	4,900	237	97	San Andres	Dolo	11.7	11	4,500
Petromac Inc.	Rankin	Tex.	Harris	1/81	80	6	1	Yegua	S	27	300	7,900
Santa Fe Energy	Raymond	Mont.	Sheridan	8/83	685	2	1	Nisku	LS	8.2	13	7,900
Shell Western E&P	Crossett	Tex.	Crane & Upton	4/72	1,500	23	11	Devonian	Tripolitic chert	22	5	5,300
Shell Western E&P	Wasson	Tex.	Yoakum	4/83	20,000	840	280	San Andres	Dolo	12	8	5,200
Shell Western E&P	Little Creek Field	Miss.	Lincoln & Pike	12/85	8,200	110	40	Lower Tuscaloosa	S	23	33	10,640
Southland Royalty	McElroy	Tex.	Upton	2/81	640	38	20	San Andres	Dolo	11.6	1.5	3,850
Texaxo	Bay St. Elaine	La.	Terrebonne	1/81	9	2	1	8,000-Foot	S	32.9	1,480	7,400
Texaco	Paradis	La.	St. Charles	2/82	347	12	4	Lower 9,000-Foot	S	26	770	10,400
Texaco	Paradis	La.	St. Charles	2/82	320	7	3	No. 8	S	27	795	8,600
Union Texas Petroleum	Wellman	Tex.	Terry	7/22/82	1,400	29	2	Wolfcamp	LS	4.15	100	9,800
Union Oil of Calif.	Dollarhide	Tex.	Andrews	5/29/85	6,183	62	43	Devonian	Dolo/Tripolite	13.5	17	8,000
CO_2 Immiscible												
Champlin	Wilmington	Calif.	Los Angeles	3/81	41	3	4	Tar	S	24	465	2,500
Champlin	Wilmington	Calif.	Los Angeles	2/84	156	10	12	Tar	S	24	465	2,500
Exxon	Pewitt Ranch	Tex.	Titus	6/83	—	1	—	Paluxy	S	24	1,000-1,500	4,500
Marathon Oil Co.	Yates	Tex.	Pecos & Crockett	11/25/85	14,300	895	13	Grayburg & San Andres	Dolo	17	175	1,100-1,700
Phillips	Lick Creek	Ark.	Bradley-Union	1/76	1,640	39	13	Meakin	S	303	1,200	1,100-1700
Shell Western E&P	Weeks Island Field	La.	New Iberia	1979	8	2	1	S RES B	S	26	1,800	12,760
Texaco	Lafitte	La.	Jefferson Parish	8/84	271	5	2	8,900-Foot	S	27	250	8,900
Texaco	Cute Blanche Bay, West	La.	St. Mary Parish	3/84	55	3	3	14 Sand	S	29	322	8,000
Texaco	Bayou Sale	La.	St. Mary Parish	5/84	564	5	2	St. Mary Sand	S	31	500	10,000
Texaco	Paradis	La.	St. Charles Parish	3/84	110	2	2	Main Pay	S	28	1,033	10,200
Texaco	Lake Barre	La.	Terrebonne	3/84	1,164	12	4	Upper M	S	25	139	13,000
Texaco	South Marsh Island Block 6	La.	Offshore	6/85	82	2	1	Rob E-S	S	29.6	323	11,200
Texaco	West Delta Block 109	La.	Offshore	6/85	74	1	1	10,800-Foot	S	30	1,900	10,500
Texaco	West Delta Block 109	La.	Offshore	6/85	48	1	1	10,200-Foot	S	27	205	10,000
Texaco	West Delta Block 109	La.	Offshore	6/85	78	1	1	12,500-Foot	S	27	1,032	12,000
Texaco	West Delta Block 109	La.	Offshore	6/85	75	1	1	13,100-Foot	S	29.7	68	11,325
Texaco	Sho-Vel-Tum	Okla.	Stevens	5/83	120	2	—	Deese	S	13	100	5,530
Texaco	Talco	Tex.	Franklin	5/82	240	—	—	Paluxy	S	25	388	3,785
Texaco	Manvel	Tex.	Brazoria	11/83	128	—	—	Oligocene	S	30	1,000	5,000
Texaco	Manvel	Tex.	Brazoria	10/82	43	—	—	Oakville	S	30	400	4,000
Texaco	West Columbia	Tex.	Brazoria	6/83	33	—	—	PTSD	S	30	560	2,600
Texaco	Thompson	Tx.	Fort Bend	1/83	100	—	—	Frio	S	27	100-1,000	5,100
Texaco	Withers, North	Tex.	Wharton	3-17-83	454	—	—	Withers, N	S	25	1,050	5,250
Texaco	Withers, North	Tex.	Wharton	5-26-83	768	—	—	C-Sand	S	25	400	5,320
Texaco	Plymouth	Tex.	San Patricio	10-21-83	380	—	—	Main Greta	S	31	350	4,650
Texaco	Pierce Ranch	Tex.	Wharton	1-18-83	480	—	—	Pierce Ranch	S	31.8	534	4,900
Texaco	Pickett Ridge	Tex.	Wharton	5-25-83	726	—	—	Pickett Ridge	S	30	1,200	4,600
Texaco	Magnet Withers, BH&S State Tracts J.E. Broussard, A. C. Thompson	Tex.	Wharton	10-17-83	1,224	—	—	Magnet Withers	S	23	1,700	5,500

Table H

	Reservoir oil			Residual oil saturation, %						
°API	cp	@ °F	Previous prod.	Start	End	Project maturity	Total prod. b/d	Enhanced prod. b/d	Project eval.	Profit
34	1.67	94	WF	—	—	JS	22	—	TETT	—
31	1.4	105	WF	—	—	JS	7,500	—	Prom.	—
31	1.4	105	WF	—	—	JS	3,000	—	Prom.	—
32	1.3	110	WF	—	—	JS	13,000	—	Prom.	—
30	2.3	105	WF	74	—	HF	47	21	TETT	—
30	2.3	105	WF	43	—	HF	9	6	TETT	—
27	2	105	WF	61	—	NC	28	28	Succ.	—
25	3.3	115	WF	59	42	JS	2,500	750	Prom.	Yes
44	1.0	100	WF	30	16	NC	35	—	Succ.	Yes
36	0.45	235	Prim.	34	258	HF	150	—	Disc.	No
32	1.46	107	WF	—	—	JS	750	—	TETT	TETT
41	0.35	130	Prim/WF	55	25	NC	43,863	1,600	Succ.	Yes
41	0.35	130	WF	55	25	NC	43,863	16,000	Succ.	Yes
43	0.45	140	WF	71	—	JS	2,000	70	TETT	Yes
38	0.4	230	Prim.	40	—	JS	160	120	—	—
32	1	183	Prim.	55	—	HF	85	85	Prom.	No
20	15	150	Prim.	—	—	HF	Term. 12/84			—
14	2,200	120	Prim.	—	—	JS	30	16	TETT	—
34	2.15	96	WF	30	18	HF	3,100	300	Succ.	No
38	1.2	148	WF	46	40	NC	3,500	950	TETT	TETT
36	0.8	90	Prim./WF	—	—	NC	50	50	—	—
38	1.7	93	—	—	—	Term.	79	79	—	—
40	1.4	83	Prim./WF	—	—	JS	395	395	Succ.	No
29	6	97	WF	—	—	JS	—	—	—	—
34	—	180	WF	—	—	JS	—	—	—	—
35	1.14	220	WF	—	—	JS	—	—	—	—
36	1.5	105	WF	—	—	HF	892	892	—	—
37	2	180	WF	50	35	HF	460	460	Prom.	No
44	0.39	154	WF	60	45	HF	680	200	Prom.	
41	0.50	125	Prim./WF	50	—	JS	5,600	—	TETT	TETT
39	1.5	175	WF	65	38	HF	400	400	Prom.	No
38	1	101	Prim.	70	50	JS	12,400	80	TETT	TETT
37	0.6	192	WF	55	25	JS	80	80	Prom.	No
40	0.4	178	Prim.	—	—	JS	86	46	prom.	Yes
44	0.36	106	Residue gas injection	34	22	HF	2,000	2,000	Succ.	Yes
33	1.3	105	WF	40	27	JS	46,000	1,200	Succ.	Yes
38	0.4	248	WF	21	2	JS	3,300	3,300	prom.	TETT
31	2.3	86	WF	—	—	Term.	—	—	—	—
36	0.667	170	Prim.	20	5	NC	7	7	Disc.	No
37	0.5	205	Prim.	62	48	HF	575	575	prom.	No
39	0.4	192	Prim.	3	2	HF	400	400	prom.	No
43.5	0.54	151	WF	35	10	JS	7,000	—	TETT	TETT
40	0.44	122	Prim/WF	35	22	JS	1,900	—	TETT	TETT
14	283	123	WF	51	30	HF	170	170	Succ.	No
14	283	123	WF	51	30	JS	375	375	TETT	TETT
19	30	160	Prim.	—	—	JS	—	—	—	—
30	5.5	82	gas injection-pressure main.	—	—	JS	97,341	—	TETT	TETT
17	160	118	Prim.	55	46	NC	450	400	Succ.	Yes
32	0.5	225	WF	22	2	NC	160	160	Succ.	No
34	0.7	185	Prim.	50	45	JS	400	30	Succ.	Yes
32	1.3	184	WF	50	45	JS	80	10	prom.	Yes
34	0.4	194	Prim.	50	45	JS	2,000	30	Succ.	Yes
38	0.5	195	WF	50	45	JS	250	15	Succ.	Yes
33	0.4	236	WF	50	45	JS	650	50	Succ.	Yes
34.0	0.30	208	Prim.	50	45	JS	220	100	Succ.	Yes
36.5	0.28	200	Prim.	50	45	JS	2,200	300	Succ.	Yes
37.3	0.26	194	Prim.	50	45	JS	3,000	10	Disc.	Yes
34.1	0.25	218	Prim.	50	45	JS	1,600	—	Disc.	Yes
37	0.3	210	Prim.	50	45	JS	500	10	Succ.	Yes
24	18	129	Prim.	49	40	Term.	12	8	Prom.	Yes
23	25	147	Prim.	50	45	Term.	462	0	Disc.	No
26.7	7.2	149	Prim.	45	20	JS	550	40	Succ.	Yes
25	4.4	149	Prim.	42-65	variable	JS	127	[illegible]	—	—
30	8	116	Prim.	36-48	10-20	JS	290	[illegible]	Prom.	Yes
25.2	2.7	120	Prim.	42-65	variable	JS	93	[illegible]	Prom.	Yes
25.7	2.45	145	Prim.	35	32	HF	300	3.5	Prom.	Yes
25.3	2.9	147	WF	32	30	Term. 1/85	98	4	Disc.	No
23.3	3.19	150	Prim.	31.5	20	Term. 1/85	150	0	Disc.	No
244	4.57	155	Prim.	48	18	HF	429	1	Disc.	No
25	2.5	138	Prim.	29	28	HF	112	—	—	No
26	2.3	154	Gas Injection	35	31	JS	563	4.5	Succ.	Yes

CO_2, other gases continue gains....continued

Operator	Field	State	County	Start date	Area, acres	Number wells		Pay zone	Formation type	Porosity, %	Permeability, md	Depth, ft
						Prod.	Inj.					
Texaco	Magnet Withers, Pierce Estates B&C	Tex.	Wharton	7-27-83	500	—	—	—	S	23	1,700	5,500
Unocal	East Coyote-Hualde Dome Units	Calif.	Orange	6-82	766	92	21	1,2,3 Anaheim	S	26	400	3,300-4,600
HYDROCARBON MISCIBLE												
Amoco	Levelland	Tex.	Hockley	5/71	1,200	40	28	San Andres	Dolo.	10.2	2.1	4,900
Amoco	Slaughter	Tex.	Hockley	4/72	12.2	2	6	San Andres	Dolo.	10.[illegible]	4.3	5,000
Arco	Prudhoe Bay	Alaska	Prudhoe Bay	12/82	3,650	42	7	Sadlerochit	S	23	300	8,800
Arco	Chandeleur Sound Block 25	La.	—	1/83	1,670	52	11	BB	S	33	1,680	5,250
Arco	Chandeleur Sound Block 25	La.	—	1/83	200	6	2	4800 Ft. Sand	S	33	1,680	4,800
Arco	South Pass Block 61	South Pass Block 61 (OCS)		8/83	55	1	1	IRK2	S	30	10-100	4,900
Arco	South Pass Block 61	South Pass Block 61 (OCS)		8/83	39	1	1	UJ, RL	S	33	50-700	5,500
Arco	South Pass Block 61	South Pass Block 61 (OCS)		8/83	26	1	1	LL, RG	S	33	10-200	6,800
Arco	South Pass Block 61	South Pass Block 61 (OCS)		5/81	179	5	2	MM, RAAO	S	30	25-750	9,100
Arco	South Pass Block 61	South Pass Block 61 (OCS)		5/81	320	4	3	UM, RAAO	S	30	25-800	9,000
Arco	South Pass Block 61	South Pass Block 61 (OCS)		5/81	74	3	1	MM, RBB	S	30	25-750	6,400
Arco	South Pass Block 61	South Pass Block 61 (OCS)		5/81	133	4	2	UM, RBB	S	30	25-800	6,300
Arco	South Pass Block 61	South Pass Block 61 (OCS)		2/84	39	1	2	LLA, RT	S	30	50-100	8,500
Arco	South Pass Block 61	South Pass Block 61 (OCS)		10/84	67	2	2	LK2, RU	S	29	100-200	8,000
Arco	South Pass Block 61	South Pass Block 61 (OCS)		8/85	54	2	1	LL, RBB1, 2	S	30	25-250	5,750
Chevron	Swanson River	Alaska	—	11/83	2,660	41	7	Hemlock	Congl.	21	143	10,300
Chevron	Swanson River	Alaska	—	11/83	2,660	41	7	Hemlock	Cong.	21	143	10,300
Exxon	South Pass Block 89	Tex.	Gulf of Mexico	12/83	—	16	10	X and Y Series	S	31	10-1,500	11,270
Exxon	Wasson	Tex.	Yoakum	7/85	1,923	106	107	San Andres	Dolo.	8.6	1.9	4,500
Exxon	Slaughter	Tex.	Hockley	5/85	569	19	11	San Andres	Dolo.	12.5	6.3	4,900
Exxon	Means	Tex.	Andrews	11/83	8,700	438	184	San Andres	Dolo.	9	20	4,300
Hunt	Fairway	Tex.	Anderson Henderson	3/66	22,618	118	64	James	LS	11.1	11	9,900
Mitchell Energy Corp.	Alvord (3,000 Ft. Strawn)	Tex.	Wise	7/20/80	217	6	3	Bryson	S	20	40	3,000
Phillips	Bridger Lake	Utah	Summit	4/70	3,800	6	1	Dakota	S	12.8	79	15,600
Sun E&P Co.	Fordoche W-12	La.	Pt. Coupee	5/80	3,400	14	5	Wilcox	S	19	4.6	13,650
Sun E&P Co.	Fordoche W-8	La.	Pt. Coupee	5/80	3,300	20	3	Wilcox	S	20	8.6	13,200
True Oil Co.	Red Wing Creek	N. Dak.	McKenzie	1/1/82	640	8	1	Mission Canyon	LS	10	0.1	9,000
NITROGEN												
Chevron (tfb)	East Painter	Wyo.	Uinta	11/83	1,500	19	5	Nugget	S	11	3	12,000
Chevron (tfb)	Painter	Wyo.	Uinta	6/80	1,600	38	18	Nugget	S	11.9	4.1	11,500
Exxon	Blackjack Creek	Fla.	Santa Rosa	2/81	4,600	8	8	Smackover	LS	16	112	15,700
Exxon	Jay-Little Escambia Creek	Fla. Ala.	Santa Rosa Escambia	1/81	14,415	85	33	Smackover	LS	14	35	15,400
Exxon	Fanny Church	Ala.	Escambia	1985	600	3	1	Smackover	LS	12	4.5	15,565
Gulf	Stonebluff	Okla.	Wagoner	3/82	540	45	26	Dutcher	S	16	100	1,200
Phillips	Andector Ellenburger	Tex.	Ector	11/81	1,931	43	3	Ellenburger	Dolo.	3.8	2,000	8,835
Texaco	Vealmoor, East	Tex.	Borden Howard	12/81	3,353	40	7	Canyon	LS	9.5	38	7,350
Unocal	Chunchula Fieldwide Unit	Ala.	Chunchula	4-1-82	23,279	35	9	Smackover Carbonate	Dolo.	12.35	10	18,500†
FLUE GAS												
Arco	Block 31	Tex.	Crane	6/49	7,840	188	73	Devonian	LS	12	10	8,500
Exxon	Hawkins	Tex.	Wood	4/77	10,590	450	40	Woodbine	S	28	3,400	4,530
Phillips	Binger	Okla.	Caddo	1977	12,960	77	26	Marchand	S	7.5	0.2	10,000
CARBONATED WATERFLOOD												
Amoco	San Andres	Calif.	Fullerton	10/85	1,600	40	32	San Andres	LS Dolo.	13	1.4	4,500

Combustion projects underway in U.S.

Operator	Field	State	County	Start date	Area, acres	Number wells		Pay zone	Formation type	Porosity, %	Permeability, md	Depth, ft
						Prod.	Inj.					
Bayou State	Believue	La.	Bossier	1970	180	126	24	Nacatoch	S	32	650	400
Bayou State	Caddo Pine Island	La.	Caddo	1979	20	13	3	Nacatoch	S	30	500	1,050
Chevron	W. Heidelberg CottonValley Unit	Miss.	Jasper	12/71	352	10	3	Cotton Valley 4 & 5	S	14	85	11,300
Cities Service	Believue	La.	Bossier	1971	180	174	50	Nacatoch	S	33.9	700	350-400
Greenwich	Forest Hill	Tex.	Wood	8/76	1,900	62	6	Harris	S	28	943	5,000
Gulf	W. Heidelberg Cotton Valley Unit	Miss.	Jasper	12/71	352	14	3	Cotton Valley 4&5	S	14	85	11,300
Lawrence-Allison	Teapot Dome, NPR-3	Wyo.	Natrona	9/80	10	9	8	Shannon	S	18	135	270-425
Marathon	Main Consolidated	Ill.	Crawford	10/61	517	51	5	Robinson	S	19.7	320	900
Mobil	West Newport	Calif.	Orange	1958	300	139	36	Miocene	S	37	500-1,000	1,600
Mobil	San Ardo	Calif.	Monterey	2/74	182	25	5	Aurignac	S	34.5	3,000	2,300
Mobil	Midway-Sunset	Calif.	Kern	1/60	150	29	6	Moco	S	36	1,500	2,700
Mobil	Midway-Sunset	Calif.	Kern	1/67	390	17	—	Webster	S	33	2,000	1,600
Mobil	South Belridge	Calif.	Kern	1964	245	25	2	Tulare	S	35	3,000	—
Mobil	Lost Hills	Calif.	Kern	4/61	164	34	5	Tulare	S	42.6	1,790	300
Petromac	Slocum	Tex.	Elkhart	4/80	50	20	7	Carrizo Wilcox	S	35	1,500	570
Santa Fe Energy	Midway-Sunset	Calif.	Kern	1982	112	2-1/58	3/14	Potter	S	30-35	200-400	1,700 ±
Texaco	Camp Hill	Tex.	Anderson	9/85	17.4	29	6	Carrizo	S	38	4,000	500
Texaco	Believue	La.	Bossier	9/63	700	334	115	Nacatoch	S	33	960	350
Unocal	Brea-Olinda	Calif.	Orange	3/72	17.1	12	2	1st Miocene	S	29	300	3,000
Unocal	Brea-Olinda	Calif.	Orange	5/80	45	12	1	3rd Pliocene	S	30	725	2,200
W. Newport Oil Co.	W. Newport (5 zone)	Calif.	Orange	1958	300	130	27	Miocene	S	37	500-1,000	1,600

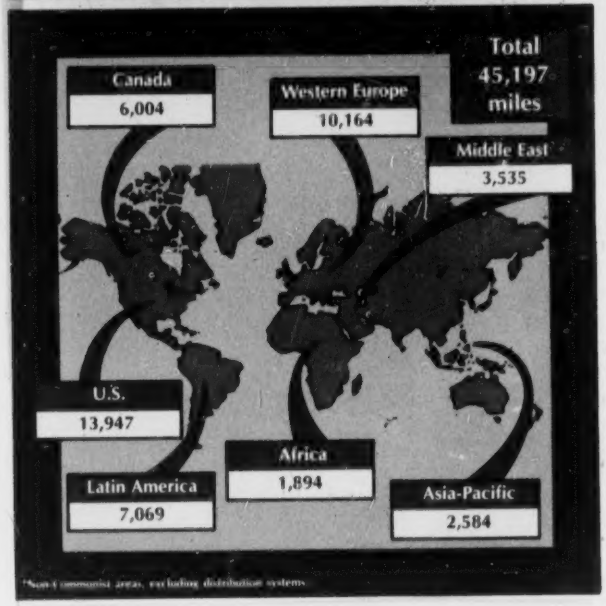
Table H

Reservoir oil				Residual oil saturation, %						
API	cp	°F	Previous prod.	Start	End	Project maturity	Total prod. bo/d	Enhanced prod. bo/d	Project eval.	Profit
26	2.3	154	Gas Injectión	35	34	JS	200	17	Succ.	Yes
23	12	130	WF	N/A	N/A	Term	1,600	—	Disc.	No
30	2.3	105	Prim.	90	—	HF	2,300	1,200	Succ.	—
28	1.9	105	WF	58	—	NC	13	9	Succ.	—
27	0.9	200	Prim.	65	30	JS	65,000	—	Prom.	TETT
27	3.45	132	Prim	45	30	JS	4,400	2,900	Succ.	Yes
27	3.5	130	Prim.	45	30	JS	450	350	Succ.	Yes
39	0.70	150	Prim.	65	25	HF	200	100	Succ.	Yes
40	0.40	150	Prim.	77	26	HF	1,280	1,200	Succ.	Yes
43	0.40	170	Prim.	73	31	HF	170	130	Succ.	Yes
38	0.30	190	WF	76	26	HF	3,225	2,130	Succ.	Yes
38	0.30	190	WF	78	25	HF	4,460	2,830	Succ.	Yes
37	0.70	165	WF	78	27	HF	4,000	3,150	Succ.	Yes
37	0.70	165	WF	78	27	HF	2,350	2,075	Succ.	Yes
33	0.86	190	Prim.	70	30	HF	330	250	Succ.	Yes
36	0.50	180	Prim.	67	27	HF	1,400	1,400	Succ.	Yes
29	1.70	158	Prim.	66	28	JS	1,600	1,240	TETT	—
36.7	1.0	180	Immiscible nat. gas	32.5	30.1	JS	—	—	—	—
37	1	180	HC Immisc.	33	30	JS	5,649	TETT	—	
38-40	0.4-0.6	165	Prim.	—	—	JS	—	—	TETT	TETT
33	1.0	106	WF	—	—	JS	—	—	TETT	TETT
32	1.3	110	WF	—	—	JS	—	—	TETT	TETT
29	6	97	WF	—	—	JS	—	—	TETT	TETT
48	0.15	260	Prim.	73	36	NC	8,600	8,600	Succ.	Yes
41	0.95	107	WF	37	32	NC	4	4	Disc.	No
40	0.36	225	Prim.	70	61	NC	550	550	Succ.	Yes
45	0.126	274	—	—	—	HF	374	—	Succ.	Yes
44	0.126	267	—	—	—	HF	903	—	Succ.	Yes
40	0.25	241	Prim.	60	20	JS	1,500	0	NE	Yes
46	0.2	185	HC gas cycling	98.5	52	JS	—	—	—	—
46	0.2	174	HC gas cycling	98.4	35	JS	—	—	—	—
48	0.3	286	WF	59	—	JS	3,600	1,500	Prom.	—
51	0.2	285	WF	59	46	JS	20,800	7,600	Prom.	Yes
51	0.15	288	Prim.	76	—	JS	—	—	TETT	TETT
38	5	85	Gas recycle	67	—	JS	—	—	—	Yes
44	0.6	132	Prim.	43.8	37	JS	7,500	—	Prom.	Yes
43	1.2	155	WF	66	42	NC	2,835	—	Disc.	—
54	0.176	325	Prim.	80	45	JS	10,500	3,150	Prom.	Yes
46	9	130	Prim.	—	—	NC	10,500	8,400	Succ.	Yes
24	3.7	168	Prim.	—	—	HF	—	15,000	Succ.	Yes
38	0.3	190	Prim.	98	75	HF	2,750	2,750	Succ.	Yes
32	—	100	—	—	—	JS	1,300	—	TETT	TETT

Table I

Reservoir oil				Residual oil saturation, %						
API	cp	°F	Previous prod.	Start	End	Project maturity	Total prod. bo/d	Enhanced prod. bo/d	Project eval.	Profit
19	660	—	Prim.	94	49	HF	600	470	Succ.	Yes
21	620	80	Prim.	96	48	JS	100	84	Prom.	No
18-27	6	221	Prim.	80	—	NC	748	748	Succ.	Yes
19	676	75	Prim.	72	32	HF	600	600	Succ.	Yes
10	1,006	185	Prim.	65	33	JS	550	550	Succ.	No
18-27	6	221	Prim.	80	—	NC				
32	10	61	Prim.	40	12-15	JS				
29	35	65	Prim./WF	78	—	NC	80	80	Prom.	Yes
13	750	100	Prim.	86	37	HF	1,900	1,900	Succ.	Yes
12	300	130	Steam soak	55	39	Term. 4/85	360	360	Succ.	Yes
14	110	125	—	99	52	HF	616	616	Succ.	Yes
14	600	113	Prim.	89	69	Term.	0	0	Succ.	Yes
14	1,600	95	Prim.	64	35	NC	400	320	Succ.	Yes
15	410	95	Prim.	63	22	NC	450	450	Succ.	Yes
18	1,200	78	—	70	20	JS	70	70	Prom.	No
11.5	97	210	Prim./Drive/Cyclic	81.1	<10	JS	400	250	TETT	TETT
18	1,200	75	Prim.	59	25	JS	29	—	TETT	TETT
19	675	130	Prim.	60	28.5	NC	2,500	2,500	Succ.	Yes
24	20	135	Prim.	—	—	Term. 11/82	139	0	Prom.	Yes
16	90	109	Prim.	—	—	NC	174	74	Prom.	Yes
13	750	100	Prim.	86	37	HF	1,700	1,200	Succ.	Yes

Pipeline contruction, 1987 and beyond*


Total
45,197
miles
Canada
6,004
Western Europe
10,164
Middle East
3,535
U.S.
13,947
Latin America
7,069
Africa
1,894
Asia-Pacific
2,584

*Non-Communist areas, excluding distribution systems.

Non-Communist pipeline construction in 1987*

Area	†4-20 in.	12-20 in.	22-30 in.	Larger than 30 in.	Total
	Miles				
GAS PIPELINES					
U.S.	1,077	696	919	708	3,400
Canada	976	14	3	4	997
Latin America	452	401	407	62	1,322
Asia-Pacific	275	99	47	—	421
West Europe	1,064	878	1,157	333	3,432
Middle East	3	—	3	—	6
Africa	302	25	3	344	674
Total gas	**4,149**	**2,113**	**2,539**	**1,451**	**10,252**
CRUDE PIPELINES					
U.S.	188	89	572	25	874
Canada	55	337	—	30	422
Latin America	30	434	—	—	464
Asia-Pacific	40	10	—	—	50
West Europe	—	41	—	—	41
Middle East	—	—	335	1,084	1,419
Africa	202	10	100	—	312
Total crude	**515**	**921**	**1,007**	**1,139**	**3,582**
PRODUCT PIPELINES					
U.S.	498	428	—	20	946
Canada	—	145	—	—	145
Latin America	428	32	—	—	460
Asia-Pacific	106	36	—	—	142
West Europe	—	—	—	—	—
Middle East	375	31	—	—	406
Africa	—	—	—	—	—
Total product	**1,407**	**672**	**—**	**20**	**2,099**
NON-COMMUNIST WORLD TOTALS					
Gas	4,149	2,113	2,539	1,451	10,252
Crude	515	921	1,007	1,139	3,582
Product	1,407	672	—	20	2,099
Total	**6,071**	**3,706**	**3,546**	**2,610**	**15,933**

*Projects planned and under way at start of 1987 and scheduled for completion beyond 1987.

†Includes some projects of less than 4 in. diameter.

Non-Communist pipeline construction in 1987 and beyond*

Area	†4-10 in.	12-20 in.	22-30 in.	Larger than 30 in.	Total
	Miles				
GAS PIPELINES					
U.S.	1,819	1,320	3,092	3,383	9,614
Canada	1,540	171	521	1,328	3,560
Latin America	1,054	746	2,174	107	4,081
Asia-Pacific	505	559	589	615	2,268
West Europe	1,759	2,146	3,171	2,913	9,989
Middle East	4	150	3	496	653
Africa	451	70	74	559	1,154
Total gas	**7,132**	**5,162**	**9,624**	**9,401**	**31,319**
CRUDE PIPLINES					
U.S.	249	97	832	1,055	2.233
Canada	186	678	—	1,435	1,299
Latin America	30	893	—	543	1,466
Asia-Pacific	40	29	70	—	139
West Europe	3	41	—	—	44
Middle East	3	75	335	2,040	2,453
Africa	302	25	150	—	477
Total crude	**813**	**1,838**	**1,387**	**5,073**	**9,111**
PRODUCT PIPELINES					
U.S.	1,110	970	—	20	2,100
Canada	—	145	—	—	145
Latin America	619	903	—	—	1,522
Asia-Pacific	128	49	—	—	177
West Europe	66	65	—	—	131
Middle East	388	41	—	—	429
Africa	263	—	—	—	263
Total product	**2,574**	**2,173**	**—**	**20**	**4,767**
NON-COMMUNIST WORLD TOTALS					
Gas	7,132	5,162	9,624	9,401	31,319
Crude	813	1,838	1,387	5,073	9,111
Product	2,574	2,173	—	20	4,767
Total	**10,519**	**9,173**	**11,011**	**14,494**	**45,197**

*Projects planned and under way in 1987 and scheduled for completion beyond 1987.

†Includes some projects of less than 4 in. diameter.

Liquid pipeline investment

1

Fig. 1a

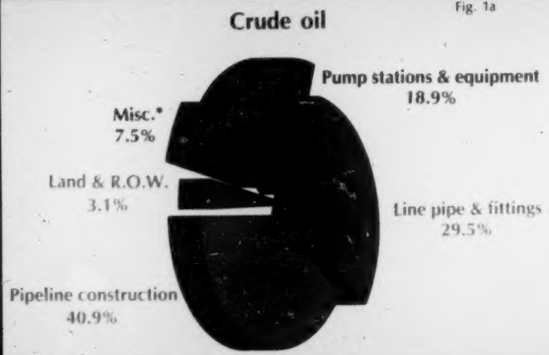
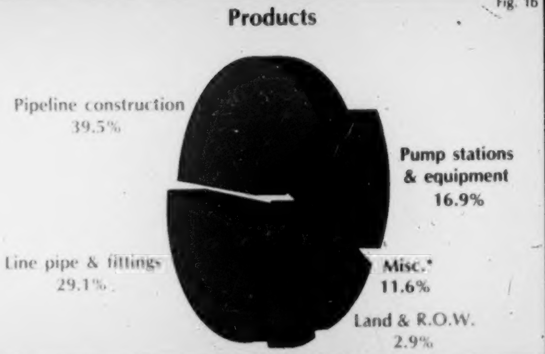


Fig. 1b



*Includes delivery systems, communications, office furniture & equipment, vehicles & other work equipment, and other property.

Source: U.S. FERC Form 6, oil pipeline companies' reports, 1985

Table 1

U.S. interstate pipeline mileage

Year	Miles Gas	 Liquid	 Total
1974	246,872	173,341	420,213
1975	255,792	172,680	428,472
1976	254,548	174,072	428,590
1977	256,198	170,948	427,146
1978	258,576	162,452	421,028
1979	264,134	169,794	433,928
1980	274,248	172,673	446,921
1981	274,634	172,815	447,449
1982	286,999	172,549	459,548
1983	285,204	167,819	453,023
1984	*258,379	173,922	*432,301
1985	*279,395	171,401	*450,796

Source: U.S. FERC Form 6 Annual Reports—oil pipelines; Forms 2 & 2A—gas pipelines.

*Reflects operating mileage as reported under the FERC's classification system for natural-gas pipeline companies effective beginning with the 1984 reporting year. Only major gas-pipeline companies are required to file mileage.

Table 2

Investment in liquids pipelines

Item	Company and investment, $ A	 B	 C	 D	 E	Total,$	Percent
Crude-pipeline investment by five companies							
Land	1,608,562	814,497	294,129	973,472	1,128,935	4,819,595	0.31
Right of way	12,080,048	999,943	316,240	16,176,741	14,829,358	44,402,330	2.83
Line pipe	130,368,131	25,599,112	11,262,596	91,769,793	150,421,182	409,420,814	26.11
Line pipe fittings	8,001,683	903,134	1,754,951	16,939,390	25,611,679	53,210,837	3.39
Pipeline construction	179,734,747	26,692,705	15,622,280	211,308,034	207,989,463	641,347,229	40.90
Buildings	15,436,614	4,813,480	2,513,608	13,407,427	9,026,847	45,197,976	2.88
Boilers	—	—	—	—	—	—	
Pumping equipment	18,996,380	5,499,877	2,414,882	16,669,186	48,327,203	91,907,528	5.86
Machine tools and machinery	—	—	—	33,140	—	33,140	0.002
Other station equipment	70,223,800	17,970,637	4,672,163	43,739,129	23,675,137	160,280,866	10.22
Oil tanks	14,307,556	5,891,602	5,678,530	16,175,510	25,486,950	67,540,148	4.31
Delivery facilities	—	—	5,274,209	2,301,342	6,896,069	14,471,620	0.92
Communications systems	435,867	3,093,553	4,709	10,414,512	3,109,859	17,058,500	1.09
Office furniture and equipment	907,488	191,640	193,089	1,045,591	1,323,775	3.661,583	0.23
Vehicles and other work equip.	6,355,323	1,873,709	466,514	5,698,337	224,040	14,617,923	0.93
Other property	—	—	—	—	49,795	49,795	0.003
Total	458,456,199	94,343,889	50,467,900	446,651,604	518,100,292	1,568,019,884	*100.00
Product-pipeline investment by five companies							
Land	4,260,025	1,763,803	532,035	936,546	3,157,824	10,650,233	0.37
Right of way	28,331,869	10,823,469	18,407,154	8,370,247	7,496,480	73,429,219	2.58
Line pipe	339,549,797	67,582,820	107,106,935	85,500,965	109,480,803	709,221,320	24.91
Line pipe fittings	71,862,081	12,765,202	14,974,034	1,592,054	18,390,783	119,584,154	4.20
Pipeline construction	559,617,944	109,257,117	199,087,690	94,184,328	160,771,495	1,122,918,574	39.45
Buildings	23,331,078	3,921,223	4,543,264	10,258,211	16,877,503	58,931,279	2.07
Boilers	—	—	—	—	—	—	
Pumping equipment	45,748,037	5,920,745	30,691,753	28,183,242	23,177,062	133,720,839	4.70
Machine tools and machinery	—	—	—	—	331,590	331,590	0.01
Other station equipment	116,834,641	20,676,443	36,250,034	23,083,617	92,125,509	288,970,244	10.15
Oil tanks	47,847,703	16,984,594	8,752,431	17,439,636	42,898,586	133,922,950	4.70
Delivery facilities	—	—	9,617,302	10,578,578	40,720,582	60,916,462	2.14
Communication systems	1,067,980	307,639	2,072,088	7,933,574	—	11,381,281	0.40
Office furniture and equipment	9,290,259	1,933,999	1,676,525	549,781	632,342	14,082,906	0.50
Vehicles and other work equip.	5,153,677	1,575,439	6,753,292	2,034,266	1,559,267	17,075,901	0.60
Other property	73,010,348	—	18,629,920	—	—	91,640,268	3.22
Total	1,325,905,439	253,512,493	459,094,457	290,645,005	517,619,826	2,846,777,220	100.00

* Actual total does not equal 100 due to independent rounding. Source: U.S. FERC Form 6, Annual Report of Oil Pipeline Companies, Dec. 31, 1985.

Gas-pipeline construction costs

2

Fig. 2a

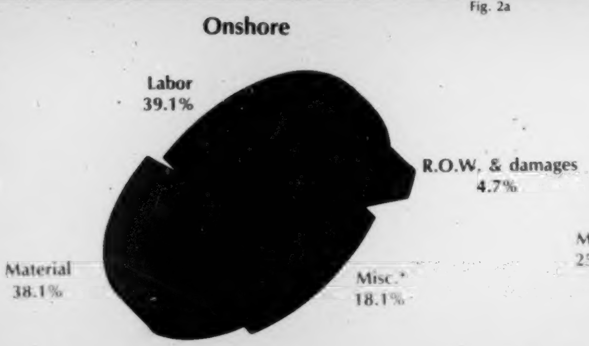
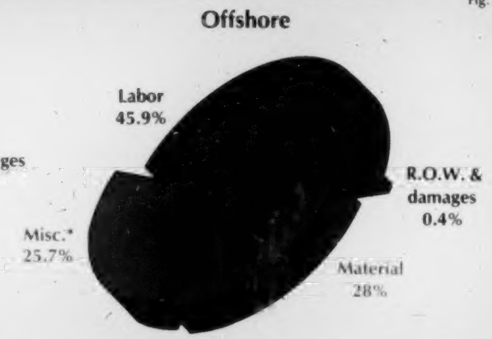


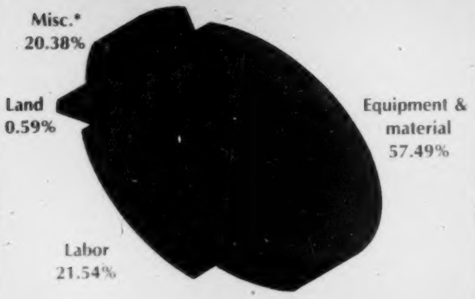
Fig. 2b



Source: U.S. FERC construction permit applications, June 1, 1985, to June 30, 1986. *Generally includes engr., sups., adm. & overhead, interest, contingencies, & FERC filing fees.

Onshore compressor-station cost split

3



Source: U.S. FERC construction permit applications, June 1, 1985, to June 30, 1986. *Generally includes engr., sups., adm. & overhead, interest, contingencies, and FERC filing fees.

10-year onshore-construction cost trend

		Average cost, $/mile					Range, $/mile	
Size	Year*	R.O.W.	Material	Labor	Misc.	Total	Low	High
8 in.	1986	14,763	44,703	63,102	32,958	155,527	137,033	193,846
	1985	3,141	28,144	47,317	16,283	94,884	64,203	228,866
	1984	22,339	49,974	175,733	74,086	322,132	223,767	540,655
	1983	6,244	48,392	89,600	23,088	167,324	159,940	178,020
	1982	8,996	46,002	67,950	31,769	154,717	73,596	572,926
	1981	8,119	34,860	23,528	20,884	87,391	55,981	109,078
	1980	8,247	39,040	102,839	13,036	163,162	149,926	200,554
	1979	1,189	40,692	63,518	14,951	123,350	50,374	581,916
	1978	1,590	32,123	30,554	8,660	72,927	61,614	109,956
	1977	1,403	34,423	27,002	8,963	71,791	28,844	126,063
12 in.	1986	43,656	94,786	243,533	101,683	483,657	186,180	1,201,356
	1985	26,582	74,620	106,447	46,164	253,813	131,765	767,548
	1984	23,035	147,750	211,783	93,481	476,050	338,872	608,685
	1983	5,135	91,492	73,042	20,754	190,423	177,050	218,265
	1982	10,536	84,972	102,390	32,173	230,071	130,252	669,227
	1981	3,855	71,444	65,613	11,861	152,773	55,981	369,018
	1980	2,610	54,235	41,089	14,111	112,045	78,428	901,282
	1979	1,590	46,062	47,283	7,121	102,056	96,822	158,185
	1978	6,697	55,362	61,919	13,830	137,808	(†)	(†)
	1977	4,332	34,429	22,658	4,573	65,992	53,839	177,694
16 in.	1986	21,474	104,368	183,134	53,546	362,523	302,102	1,071,477
	1985	8,511	80,529	47,708	20,091	156,839	154,746	167,876
	1984	15,106	131,139	111,234	82,747	340,226	231,790	363,718
	1983	31,542	337,088	929,969	278,159	1,576,758	447,890	2,370,748
	1982	6,278	104,319	113,380	21,936	245,913	175,715	430,841
	1981	9,203	110,684	133,968	40,424	294,279	140,674	590,112
	1980	7,404	74,571	57,681	18,050	157,706	118,085	471,972
	1979	....	....	....	....	....	....	....
	1978	7,506	54,936	54,117	12,552	129,111	86,898	203,721
	1977	3,635	50,574	32,260	9,347	95,817	68,897	145,916
20 in.	1986	29,227	134,332	182,623	82,657	428,839	175,000	1,077,419
	1985	108,870	187,379	190,886	144,974	632,109	353,088	1,277,454
	1984	16,735	175,406	190,088	63,302	445,531	226,415	616,250
	1983	12,682	147,354	154,811	46,073	360,934	237,600	476,104
	1982	12,284	124,148	128,148	30,649	295,229	210,378	482,464
	1981	8,556	122,659	114,147	30,370	275,732	227,679	1,741,597
	1980	11,470	130,438	73,751	48,213	263,872	157,947	533,265

Table 3

Size	Year*	Average cost, $/mile R.O.W.	Material	Labor	Misc.	Total	Range, $/mile Low	High
	1979	....	....	....	....	....	....	....
	1978	3,235	101,052	83,810	12,346	200,443	153,959	242,685
	1977	5,415	95,045	85,842	16,044	202,346	110,349	312,337
24 in.	1986	43,746	245,807	378,917	170,094	838,565	355,428	1,607,660
	1985	26,648	296,486	305,437	151,657	780,228	469,318	4,893,740
	1984	29,133	289,487	298,521	128,390	745,531	395,676	1,772,049
	1983	31,416	310,583	501,401	148,993	995,393	608,781	1,649,454
	1982	28,537	508,226	807,847	120,895	1,465,505	(†)	(†)
	1981	30,078	269,414	395,204	127,790	822,486	350,898	826,088
	1980	14,220	162,019	152,406	52,114	380,759	230,122	820,295
	1979	5,268	152,878	193,227	19,206	370,579	(†)	(†)
	1978	2,372	112,790	125,435	17,045	257,642	239,480	371,932
	1977	....	....	....	....	....	....	....
30 in.	1986	34,035	268,922	253,838	120,603	677,397	188,835	1,571,948
	1985	60,408	320,219	314,878	152,035	847,541	668,640	5,778,947
	1984	20,885	336,043	376,631	183,034	916,592	637,546	1,413,826
	1983	23,872	253,071	348,478	116,084	741,506	660,086	1,683,143
	1982	20,756	296,737	362,787	93,103	773,383	548,396	1,179,760
	1981	14,135	309,364	201,037	73,281	597,817	561,358	4,684,745
	1980	13,206	227,229	134,491	46,018	420,944	319,482	921,772
	1979	25,884	239,454	290,474	35,752	591,560	529,178	604,298
	1978	12,231	187,718	216,264	20,895	437,108	(†)	(†)
	1977	6,485	147,814	91,862	22,469	268,630	266,513	270,684
36 in.	1986	360,582	428,572	468,960	151,769	1,085,359	714,286	5,264,368
	1985	21,967	389,751	296,742	157,536	865,997	629,179	6,443,590
	1984	36,063	358,876	362,667	152,787	910,393	665,480	2,143,680
	1983	51,436	498,047	490,568	306,666	1,346,717	703,112	2,724,493
	1982	13,429	375,281	176,287	58,733	623,730	615,160	833,546
	1981	5,948	344,374	358,072	74,415	782,809	693,945	1,573,759
	1980	20,677	344,664	268,753	87,850	721,944	528,710	1,105,515
	1979	20,654	272,397	203,639	57,814	554,504	443,024	682,280
	1978	26,441	199,878	150,667	65,439	442,425	(†)	(†)
	1977	20,101	209,878	115,498	18,366	363,843	(†)	(†)

*1977-1978 based on completed costs reported to the U.S. FERC by fiscal year; 1979-1982 by calendar year. 1983-86 based on FERC construction permit applications, by fiscal year. †One report only.

Table 4

Completed compressor-station costs—1983*

Location	Number of units	Total horsepower	Cost, $					
			Equipment & material	Labor	Engineering & supv.	Misc.†	Total cost	$/hp
ONSHORE								
New reciprocating—units stations								
Texas	1	57	13,134	24,090	—	9,846	47,070	826
New Mexico	1	60	30,644	102,462	—	53,697	186,803	3,113
Wyoming	1	115	75,370	8,240	—	6,022	89,632	779
New Mexico	1	125	121,602	116,782	—	50,831	289,215	2,314
Colorado	1	140	211,677	66,251	—	142,806	420,734	3,005
Texas	1	150	25,308	84,927	—	40,385	150,620	1,004
Kansas	1	180	155,000	75,000	—	29,821	259,821	1,443
Texas	1	180	122,106	16,441	—	11,886	150,433	836
Oklahoma	1	250	172,660	50,852	—	—	223,512	894
Wyoming	1	250	444,294	27,290	—	17,125	488,709	1,955
West Virginia	1	280	284,095	65,651	—	116,346	466,092	1,665
Colorado	1	358	15,422	17,824	—	35,217	68,463	191
Oklahoma	1	440	321,787	392,602	—	65,840	780,229	1,773
Wyoming	1	800	536,582	187,604	64,986	59,660	848,832	1,061
Pennsylvania	3	1,440	1,110,271	402,989	—	162,447	1,675,707	1,164
Oklahoma	2	1,582	1,100,380	709,516	—	441,999	2,251,895	1,423
Wyoming	2	1,600	1,427,132	499,274	148,068	201,786	2,276,260	1,423
New Mexico	2	1,800	1,668,493	707,042	—	472,244	2,422,779	1,346
Kansas	3	2,313	2,465,034	466,374	395,237	412,404	3,739,049	1,617
Wyoming	1	2,700	4,804,514	1,207,815	2,049,216	1,453,114	9,514,659	3,524
Colorado	1	4,140	5,115,109	1,685,308	604,001	1,301,585	8,706,003	2,103
Colorado	2	5,400	5,516,585	3,687,230	669,736	2,005,180	11,878,731	2,200
Colorado	2	8,640	7,054,529	1,623,560	1,407,782	1,906,266	11,992,137	1,388
Reciprocating-unit additions								
Louisiana	1	80	238,332	46,305	—	42,010	326,647	4,083
Texas	1	150	141,813	187,240	—	66,899	395,952	2,640
New Mexico	1	509	57,516	97,948	—	36,410	191,874	377
Kansas	2	623	523,287	94,972	—	129,787	747,866	1,200
Kansas	1	917	376,603	149,815	—	100,034	626,452	683
Kansas	1	1,011	731,182	218,633	—	290,107	1,239,922	1,226
New Mexico	1	1,050	617,578	304,733	—	162,198	1,084,509	1,033
Oklahoma	1	1,350	1,451,044	527,521	229,528	486,483	2,694,576	1,996
Texas	2	1,560	1,096,940	230,681	153,547	271,396	1,752,564	1,123
Louisiana	1	2,250	2,152,861	1,339,490	275,191	353,455	4,120,997	1,832
Kansas	1	3,312	5,214,140	998,279	1,140,057	1,084,606	8,437,082	2,547
Pennsylvania	1	4,000	3,932,000	3,378,200	272,000	1,354,813	8,937,013	2,234
New turbine-driven centrifugal units								
New Mexico	2	2,200	825,127	467,049	—	191,824	1,484,000	675
Utah	1	3,830	1,653,797	339,667	60,164	323,387	2,377,015	621
Total—onshore	**48**	**55,842**	**51,803,948**	**20,605,477**	**7,469,513**	**13,464,916**	**93,343,854**	**1,672**
OFFSHORE								
New reciprocating-unit stations								
Texas	1	190	237,932	424,432	—	134,278	796,642	4,193
Total—offshore	**1**	**190**	**237,932**	**424,432**	**—**	**134,278**	**796,642**	**4,193**
Total—compressor station completions—1983	**49**	**56,032**	**52,041,880**	**21,029,909**	**7,469,513**	**13,599,194**	**94,140,494**	**1,680**

Source: FERC Staff Report, "Cost of Pipeline and Compressor Station Construction under Natural Gas Act Section 7(c) for Years 1980 through 1983."

*Reflects costs for projects completed in 1983, the most recent year for which data are available. Previous FERC staff reports of this series used the fiscal year in which the cost reports were received as a basis for data compilation. †Generally includes interest during construction, overheads, land, right-of-way, damages, contingencies, and other costs.

Table 5

Natural-gas-pipeline transmission expenses*

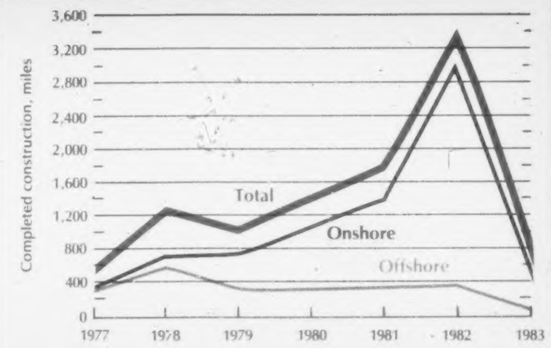
	Expenses, $			Cost mile, $			Cost MMcf sold, $		
	1983-all	1983-majors†	1984-majors§	1983-all	1983-majors§	1984 majors§	1983-all	1983-majors†	1984-majors§
Operations expenses									
Supervision and engineering	145,623,437	140,609,579	131,521,396	515.20	569.39	519.30	10.18	10.90	9.90
System control and load dispatching	28,891,885	26,462,904	25,744,727	102.20	107.16	101.70	2.01	2.05	1.96
Communication system expenses	21,302,402	20,817,146	22,680,380	75.40	84.30	89.60	1.49	1.61	1.72
Compressor station and expenses	240,240,464	234,682,302	241,754,444	849.90	950.30	995.00	16.80	18.19	18.38
Gas for compressor station fuel	885,171,599	869,462,234	938,899,424	3,131.50	3,520.90	3,709.10	61.87	67.38	71.38
Other fuel and power for compressor stations	51,707,988	49,766,034	61,143,396	182.90	201.53	241.50	3.61	3.86	4.65
Mains	191,421,063	180,921,259	193,277,540	677.20	732.63	763.50	13.38	14.02	14.69
Measuring and regulating station expenses	70,191,000	64,651,604	68,129,612	248.30	261.80	269.10	4.91	5.01	5.18
Transmission and compression of gas by others	1,868,017,788	1,709,062,975	1,668,917,320	6,608.50	6,920.80	6,590.00	130.57	132.45	126.88
Other transmission expenses	53,687,061	51,963,860	49,048,231	189.90	210.43	193.80	3.75	4.03	3.73
Rents	20,912,188	17,709,699	19,188,281	74.00	71.71	75.80	1.46	1.37	1.46
Total operation expenses	**3,577,167,578**	**3,366,109,687**	**3,420,304,751**	**12,655.20**	**13,630.95**	**13,511.80**	**250.03**	**260.87**	**260.03**
Maintenance expenses									
Supervision and engineering	37,463,063	35,093,205	33,302,063	132.50	145.50	131.60	2.62	2.78	2.53
Structures and improvements	26,371,788	25,667,145	25,785,236	93.30	103.90	101.90	1.84	1.99	1.96
Mains	100,621,645	95,440,459	83,272,664	356.00	356.50	329.00	7.03	7.40	6.33
Compressor station equipment	180,222,025	174,845,031	165,100,644	637.60	708.03	652.20	12.60	13.55	12.55
Measuring and regulating station equipment	14,982,590	13,257,876	14,480,791	53.00	53.69	57.20	1.05	1.03	1.10
Communication equipment	13,020,822	12,698,593	13,376,965	46.10	51.42	52.80	0.91	0.98	1.02
Other equipment	4,739,973	4,610,852	4,615,509	16.80	18.67	18.20	0.33	0.36	0.35
Total maintenance expenses	**377,421,909**	**362,443,161**	**339,933,872**	**1,355.20**	**1,467.71**	**1,342.90**	**26.38**	**28.09**	**25.80**
Total transmission expenses	**3,954,589,487**	**3,728,552,848**	**3,760,238,623**	**13,990.4**	**15,098.66**	**14,854.70**	**276.41**	**288.96**	**285.83**
Total miles of transmission pipeline	**282,664**	**246,946**	**253,135**						
Total natural gas sold, MMcf	**14,306,847**	**12,903,903**	**13,153,705**						

Source: Statistics of interstate Natural Gas Pipeline Companies—1983 & 1984, U.S. Department of Energy. *U.S. interstate pipelines for calendar years 1983 & 1984. †43 of 102 companies filing Form 2's for 1983 with the Federal Regulatory Commission; defined as those interstate natural-gas pipeline companies that had combined gas sales for resale and gas transported (interstate) or stored for a fee that exceeded 50 bcf during 1983. §43 of 142 companies filing Form 2's or 2A's with the FERC for 1984.

U.S. gas-pipeline construction: 1977-1983*

4

Year const. ended	Total miles	Onshore miles	Offshore miles	Total hp	Total expenditures, $
1976	631.32	476.86	154.46	94,974	$ 238,429,560
1977†	562.19	283.07	279.12	79,590	250,442,550
1978†	1,270.62	698.34	572.28	202,492	918,079,934
1979	1,023.01	711.98	311.03	78,100	437,964,247
1980	1,430.79	1,113.09	317.70	159,088	695,865,650
1981	1,774.40	1,434.82	339.58	250,900	1,243,867,779
1982	3,416.46	3,029.88	386.58	237,540	3,013,193,135
1983	604.73	537.30	67.43	43,585	340,405,682
Total	10,713.52	8,285.34	2,428.18	1,146,269	$7,138,248,537



Source: U.S. FERC Staff Reports, 1979-82 & 1980-83. *Mileage completed in each year for all diameter classifications. †Excludes data for pipeline projects of less than 1 miles.

Single point mooring around the world

Country	Year	Port/Field	Owner	Designer/ Contractor	Max. Vessel Size (Dwt)	Hose number- Size/System	Water Depth (Ft.)
Angola	1968	Cabinda	Gulf	SBM	100,000	2-16″/CALM	77
	1979	Quinfuquena	Petrangol	EMH	150,000	2-16″	NA
	1980	Essungo	Texaco/Petrangol	IMODCO	250,000	2-24″ & 1-16″/CALM	115
	1980	Cabinda	Gulf	SBM	55,000	1-4″/CALM	118
	1982	Takula	Gulf	SBM	300,000	1-12″/CALM	200
	1984	Palanca	Elf	SBM	250,000	S-Y CALM	148
	1985	Takula II	Gulf	SBM	319,000	CALM	72
Argentina	1970	Puerto Rosales	YPF	IMODCO	40,000	1-16″ & 1-12″/CALM	59
	1975	Caleta Olivia	YPF	IMODCO	60,000	1-20″ & 1-12″/CALM	113
	1979	Caleta Cordova	YPF	IMODCO	60,000	1-20″ & 1-12″/CALM	89
	1980	Puerto Rosales	YPF	IMODCO	60,000	1-20″ & 1-12″/CALM	NA
Australia	1970	Botany Bay	Maritime Services	SBM	120,000	3-12″/CALM	63
	1985	Jabiru	BHP	SBM	160,000	Turret/FPS	394
Bangladesh	1967	Chittagong	Chittagong Port Trust	IMODCO	45,000	1-12″/CALM	45
Brazil	1968	Tramandai	Petrobras	SMB	105,000	2-16″/CALM	71
	1970	Tramandai	Petrobras	SBM	200,000	1-24″/CALM	71
	1975	Garoupa	Perobras	CB & 1	53,000	NA	NA
	1975	Garoupa	Petrobras	CB & 1	53,000	NA	NA
	1976	Sao Francisco	Petrobras	IMODCO	200,000	2-20″/CALM	72
	1978	Garoupa	Petrobras	IMODCO	53,000	2-16″/CALM	410
	1978	Enchova 4	Petrobras	SBM	53,000	1-8″/CALM	410
	1979	Tedut & Tefran	CEC/Petrobras	SBM	200,000	2-20″/CALM	72
	1980	Arembepe	Tibras	SBM	4,000	1-16″/CALM	60
	1981	Pampo	Petrobras	SBM	53,00	1-16″/CALM	460
	1981	RJS 28A	Petrobras	SBM	53,000	1-16″/CALM	395
	1981	Badejo	Petrobras	IMODCO	53,000	2-10″/CALM	338
	1982	Corvina	Petrobras	SBM	53,000	2-8″/CALM	492
	1982	Garoupa	Petrobras	Bluewater	100,000	S-Y CALM	
	1986	Albacora	CEC/Petrobras	SBM	NA	FPSO	NA
Brunei	1971	Seria	Shell	SBM	150,000	2-16″/CALM	73
	1975	Seria	Shell	SBM	210,000	2-20″/CALM	67
	1981	Seria	Shell	Mitsubishi	313,000	1-20″ & 1-16″/CALM	NA
Cameroon	1976	Kole	Elf Serepca	IMODCO	150,000	1-12″/CALM	80
	1979	Kole	Elf Serepca	Bluewater	250,000	1-24″/CALM	102
	1979	Limboth Point	Sonara	SBM	150,000	2-16″ & 1-16″/CALM	75
	1981	Kole	Elf Serepca	IMODCO	250,000	2-24″ & 1-16″/CALM	85
	1982	Victoria Marine	Total	EMH	280,000	CALM	183
Canada	1969	St. John, N.B.	Irving Oil	SBM	350,000	1-24″ & 1-16″/CALM	149
Chile	1971	Quintero Bay	Enap	SBM	209,000	2-20″/CALM	154
China	1985	Weitzhou	Total	EMH	250,000	jacket/soft yoked FPSO	123
	1985	Bohai Bay	JCODC	Bluewater	100,000	FPSO/TOWSY	72
	1985	Weitzhou	CSOFL	SBM	250,000	Tank Conv.	250
Colombia	1985	Covenas	Occidental	Bluewater	120,000	CALM	80
	1985	Covenas	Occidental	Bluewater	350,000	CALM S-Y	110
Congo	1972	Djeno	Elf Congo	SBM	250,000	2-20″/CALM	75
Denmark	1971	Dan	Danbor	SBM	70,000	1-12″/CALM	150
	1979	Gorm	Danbor	SBM	70,000	2-12″/CALM	128
	1982	Frederickshaven	DDCS	SOFEC	35,000	2-20″/CALM	50
Dominican Republic	1971	Santo Domingo	Refineria Domincia	SBM	150,000	2-16″/CALM	85
Ecuador	1971	Esmeraldas	Gulf/Texaco	SBM	100,000	2-20″/CALM	124
	1971	Esmeraldas	Gulf/Texaco	SBM	100,000	1-24″ & 1-20″/CALM	124
	1978	Esmeraldas	Texaco	IMODCO	100,000	1-24″ & 1-20″/CALM	118

Single point mooring around the world—*continued*

Country	Year	Port/Field	Owner	Designer/ Contractor	Max. Vessel Size (Dwt)	Hose number- Size/System	Water Depth (Ft.)
Equatorial Guinea	1963	Bata	CEPSA	IMODCO	20,000	1-16"/CALM	39
Egypt	1968	Ras-el-Shaqiq	Wepco	SBM	100,000	2-16"/CALM	78
	1974	Suez	Sumed	SBM	120,000	2-20"/CALM	82
	1974	Alexandria	Sumed	SBM	120,000	2-20" & 1-16"/CALM	85
	1974	Alexandria	Sumed	SBM	120,000	2-20" & 1-16"/CALM	82
	1974	Alexandria	Sumed	SBM	120,000	2-20" & 1-16"/CALM	82
	1976	Suez	Sumed	IMODCO	250,000	2-24"/CALM	80
	1976	Alexandria	Sumed	IMODCO	250,000	2-24" & 1-20"/CALM	108
	1976	Alexandria	Sumed	IMODCO	250,000	2-24" & 1-20"/CALM	108
	1976	Agami	EGPA	SBM	100,000	2-16"/CALM	98
	1978	El Alamein	Wepco	SBM	100,000	2-16"/CALM	70
	1980	Ras Budran	Suez Oil Co.	SBM	250,000	1-24" & 1-20"/CALM	115
	1981	Suez	Sumed	SBM	500,000	2-24" & 1-16"/CALM	118
	1982	Sidi Kerir	Sumed	IMODCO	250,000	2-20" & 1-20"/CALM	108
	1983	Zeit Bay	SUCO	SBM	155,000	2-20"/CALM	82
	1983	Ras Shukeir	EGPC	SBM	100,000	CBM	
	1983	Wadi Feiran	Petrojet	NA	100,000	NA	
	1984	East Zeit Bay	Esso	IMODCO	85,000	CALM	200
	1984	Geisum	Conoco	IMODCO	100,000	ENG FPSO	
	1985	Sadat area	Petrojet	IMODCO	60,000	CBM	60
Falklands	1984	Port Stanley	M.O.D.	IMODCO	100,000	CALM	65
France	1968	Bay of Biscay	Elf	CFEM	100,000	NA	NA
	1973	Frontignan	Mobil	IMODCO	270,000	2-20"/CALM	102
Gabon	1965	Gamba	Shell	SBM	100,000	1-16"/CALM	63
	1967	Lucina	Shell	SBM	165,000	1-16"/CALM	112
	1979	Gamba	Shell	SBM	140,000	1-16" & 1-10"/CALM	63
	1983	Inguessi	AMOCO	Bluewater	—		
	1980	Mayumba	Elf Gabon	Bluewater	70,000	1-4"/CALM	79
Ghana	1978	Bonsu	Agripetco	SOFEC	64,000	1-10"/CALM	79
India	1975	Bombay High	ONGC	SBM	100,000	1-16" & 1-8"/CALM	240
	1975	Bombay High	ONGC	SBM	100,000	1-16"/CALM	240
	1977	Gulf of Kutch	IOC	SBM	300,000	2-24"/CALM	115
	1982	Bombay High	ONGC	IMODCO	2,500	SBBM	262
	1983	Bombay High	ONGC	IMODCO	150,000	1-16"/CALM	NA
	1984	Gulf of Kutch	IOC	IMODCO	100,000	CALM	101
	1985	Panna	ONGC	IMODCO	115,000	CALM	120
Indonesia	1970	Pang Kalan Susu	Pertamina	IMODCO	100,000	2-12"/CALM	NA
	1971	Balikappan	Union Oil	SBM	250,000	2-20" & 1-16"/CALM	102
	1971	Java Sea	ARCO	McDermott	45,000	1-8"	NA
	1971	Java Sea	IIAPCO	IMODCO	55,000	2-12"/CALM	120
	1972	Java Sea	ARCO	IMODCO	133,000	1-12" & 2-16"/CALM	135
	1972	Java Sea	IIAPCO	IMODCO	133,000	2-12" & 2-20"/CALM	130
	1973	Djatibarang	Pertamina	IMODCO	150,000	3-20"/CALM	75
	1973	Ardjuna	ARCO	SBM	150,000	3-16"/CALM	138
	1973	Ardjuna	ARCO	SBM	200,000	2-16"/CALM	126
	1974	Bekapai	Total	SBM	100,000	2-8"/CALM	123
	1974	Ardjuna	ARCO	SBM	NA	SBS	140
	1975	Poleng	Cities Service	SBM	55,000	2-8"/SBS	180
	1976	Handil	Total	SBM	125,000	2-20"/CALM	105
	1977	Balongan	Pertamina	SBM	150,000	2-20" & 1-16"/CALM	74
	1978	Udang	Conoco	SBM	93,000	2-8"/SBS	302
	1980	Cinta	IIAPCO	IMODCO	133,000	2-12" & 2-20"/CALM	130
	1980	Semarang	Pertamina	SBM	17,000	1-16"/CALM	39
	1981	Krisna	IIAPCO	IMODCO	230,000	2-20", 2-16" & 1-6"/CALM	NA
	1981	Ardjuna	ARCO	SBM	56,000	1-6"/CALM	135
	1981	NA	LETJES	SOFEC	10,000	2-8"	60
	1981	Balikpapan	Pertamina	SBM	150,000	CALM	102
	1983	Lalang	BP	Bluewater	140,000	Yoke Tower	NA
	1983	Balongan	Pertamina	SBM	35,000	1-16"/CALM	46
	1983	Arun	Mobil	Bluewater	100,000	CALM	
	1984	Kakap	Marathon	SBM	140,000	SBM	290
	1985	West Madura	Kodeco	Bluewater	100,000	CALM	330
	1985	Kepiting	Conoco	Comb. Eng.	100,000	FPSO/CBM	330

Single point mooring around the world—*continued*

ountry	Year	Port/Field	Owner	Designer/ Contractor	Max. Vessel Size (Dwt)	Hose number- Size/System	Water Depth (Ft.)
ran	1970	Cyrus	Ipac	SBM	140,000	2-16"/CALM	141
	1971	Iman Hasan	SIRIP	IMODCO	250,000	2-16"/CALM	82
	1983	Iman Hassan	NIOC	SBM	250,000	CALM	160
	1985	Bushire	Smit Tak.	SBM	150,000	CALM	118
raq	1981	Arabian Gulf	Brown & Root	IMODCO	270,000	2-24"	NA
	1981	Arabian Gulf	Brown & Root	IMODCO	270,000	2-24"	NA
	1981	Arabian Gulf	Brown & Root	SBM	270,000	2-24"	NA
	1981	Arabian Gulf	Brown & Root	SBM	270,000	2-24"	NA
aly	1963	Fimicino	PURFINA	IMODCO	50,000	2-12"/CALM	49
	1963	Ravenna	SAROM	IMODCO	50,000	2-12"/CALM	NA
	1964	Fiumicino	PURFINA	Dalmine	100,000	1-16"/RMD	NA
	1970	Porto Torres	Sardoil	SBM	255,000	2-20"/CALM	101
	1972	Ancona	API	Lavore Adriatica Maritime	300,000	NA	NA
	1972	Genoa	Port Authority	CIDONIO	500,000	2-20" & 2-12"	NA
	1978	Nilde	Agip	SBM	80,000	1-6"/SALS	312
	1981	Rospo Mare	Elf Italiana	EMH	35,000	2-10"	NA
	1981	Genoa	C.A.P.	Technomare	270,000	SALM (Inv).	
	1984	Vega	Montedison	EMH	250,000	SALMRA	394
	1985	Mila	Montedison	Bluewater	70,000	CALM/SYFPS	90
	1985	Nilde II	Agip	IMODCO	80,000	SALMRA/ENG	312
	1985	Rospo Marc	Elf	SBM	140,000	FSO/turret	230
vory Coast	1980	Bouet	Societe Invoirienne de Raffinage	IMODCO	250,000	3-24"/CALM	164
	1981	Espoir	Phillips	Bluewater	240,000	1-12"/CALM	279
apan	1961	Niigata	Shell	Niigata	100,000	1-20"/CALM	NA
	1963	Oita	Kyushu Oil	IMODCO	100,000	2-12"/CALM	177
	1965	Yokkaichi	Showa-Yokkaichi	Mitsubishi	100,000	2-16" & 1-16"/CALM	NA
	1965	Yokkaichi	Showa-Yokkaichi	Mitsubishi	100,000	2-16" & 1-16"/CALM	NA
	1965	Chiba	Maruzen Oil	IMODCO	100,000	3-12"/CALM	NA
	1967	Koshiba	US Army	IMODCO	100,000	2-12"/CALM	65
	1968	Hakozaki	US Army	IMODCO	100,000	2-16" & 2-12"/CALM	60
	1968	Kawasaki	Showa-Mitsubishi	Mitsubishi	265,000	2-24"/CALM	NA
	1968	Hakodate	Asia Oil	IMODCO	32,000	1-16"/CALM	49
	1968	Yokkaichi	Daikyo Oil	Mitsubishi	200,000	2-20"/CALM	NA
	1968	Yokkaichi	Daikyo Oil	Mitsubishi	230,000	2-20"/CALM	NA
	1969	Toyama	Japan Sea Oil	IMODCO	150,000	2-16"/CALM	NA
	1969	Yokohama	Ogishima Oil	Mitsubishi	200,000	2-20"/CALM	NA
	1969	Ube	Seibu Oil	Mitsubishi	200,000	2-20"/CALM	NA
	1970	Atsumi	Chubu Electric	Mitsubishi	200,000	2-20"/CALM	NA
	1970	Himeji	Idemitsui Oil	IMODCO	220,000	2-20"/CALM	NA
	1970	Buckner Bay	Toyo Gasoline	IMODCO	100,000	2-16"/CALM	NA
	1970	Tengan	US Army	IMODCO	50,000	2-12"/CALM	70
	1971	Nakagusuki Bay	Esso	Esso, Van Houten	250,000	2-24"/SALM	85
	1973	Ube	Seibu Oil	Mitsubishi	200,000	2-20"/CALM	NA
	1974	Kawasaki	Showa-Mitsubishi	Mitsubishi	300,000	2-20"/CALM	NA
	1975	Yokohama	Oghishima Oil	Mitsubishi	200,000	2-20"/CALM	NA
	1976	Yokkaichi	Showa-Yokkaichi	Mitsubishi	300,000	1-20" & 1-20"/CALM	NA
	1981	Mutsu-Ogawara	JNOC	SOFEC	350,000	2-24"/SALM	145
	1983	Fuqui	JNOC	SOFEC	240,000	2-20"/SALM	148
Kuwait	1967	Ras Al Khafji	Arabian Oil	McDermott	150,000	1-16" & 1-12"	NA
	1972	Ras Al Khafji	Arabian Oil	McDermott	250,000	1-24" & 1-10"	NA
	1977	Mina-Al-Ahmadi	KOC	ETPM	532,000	2-24" & 1-16"/RMD	NA
	1980	Ras al Kahfji	Arabian Oil	Mitsubishi	300,000	CALM	NA
	1986	Ras al Khafji	Arabian Oil	SBM	NA	CALM	NA
Lebanon	1985	Beruit	Elec du Liban	EMH	40,000	SALM	118
Libya	1962	Brega	Esso	Esso	100,000	Fixed Tower/ Loading Arm	NA
	1965	Ras-es-Sider	Oasis	SBM	100,000	3-16"/CALM	101
	1968	Zueitina	Occidental	SBM	100,000	1-24"/CALM	100
	1968	Zueitina	Occidental	SBM	150,000	2-24"/CALM	105
	1968	Zueitina	Occidental	SBM	150,000	2-24"/CALM	105
	1969	Brega	Esso	Esso Van Houten	300,000	1-24"/SALM	140

Single point mooring around the world—*continued*

Country	Year	Port/Field	Owner	Designer/ Contractor	Max. Vessel Size (Dwt)	Hose number- Size/System	Water Depth (Ft.)
	1969	Ras Lanuf	Mobil	SBM	255,000	2-24"/CALM	96
	1969	Ras-es-Sider	Oasis	SBM	255,000	2-24"/CALM	101
	1974	Azzawiya	NOC	DBV/Woodfield	100,000	2-16"	NA
	1974	Azzawiya	NOC	DBV/Woodfield	30,000	1-8" & 1-10"	NA
	1976	Azzawiya	NOC	SBM	140,000	2-20"/SALM	85
	1976	Azzawiya	NOC	SBM	100,000	2-20"/SALM	98
	1979	Zueitina	Occidental	IMODCO	275,000	2-24"/CALM	99
	1980	Ras-es-Sider	Oasis	SBM	300,000	2-24"/CALM	102
	1983	Ras-es-Sider	Oasis	IMODCO	NA	CALM	NA
	1984	Marsa el Brega	Sirte Oil	SBM	300,000	CALM	148
Malaysia	1959	Miri	Shell	SBM	70,000	2-8" & 1-6"/CALM	48
	1959	Miri	Shell	SBM	70,000	2-12" & 1-16"/CALM	48
	1962	Miri	Shell	SBM	70,000	2-8" & 1-6"/CALM	48
	1962	Port Dickson	Shell	SBM	100,000	2-16"/CALM	90
	1963	Miri	Shell	SBM	70,000	2-12" & 1-6"/CALM	53
	1974	Labuan	Shell	SBM	313,000	2-20"/CALM	98
	1974	Tembungo	Exxon	SOFEC	94,000	1-10"/SALM	300
	1974	Pulai	Exxon	SBM	190,000	1-12"/SALM	240
	1977	Pulai	Exxon	SBM	166,000	SALS	216
	1978	Bintulu	Shell	SBM	210,000	2-20"/CALM	67
	1981	Trengganu	Petronas	SOFEC	85,000	2-20"/SALM	60
	1981	Trengganu	EPMI	SBM	250,000	1-24"/SALM	92
	1981	Trengganu	EPMI	SBM	250,000	1-24"/SALM	85
	1981	Paka	JGC Corp.	SOFEC	85,000	CALM	65
	1982	Port Dickson	Shell	Mitsubishi	100,000	CALM	
	1984	Lutong	Shell	SBM	125,000	CALM	77
	1984	Lutong II	Shell	SBM	125,000	CALM	77
Mexico	1973	Tuxpan	Pemex	IMODCO	60,000	2-16"/CALM	60
	1974	Tuxpan	Pemex	IMODCO	60,000	1-10" & 3-16"/CALM	67
	1976	Salina Cruz	Pemex	IMODCO	60,000	3-16" & 1-12"/CALM	75
	1976	Rosarito Beach	Pemex	IMODCO	60,000	1-20" & 2-16"/CALM	77
	1978	Rabon Grande	Pemex	IMODCO	150,000	1-16" & 2-20"/CALM	90
	1980	Cayo Arcas	Pemex	IMODCO	151,000	2-24" & 1-16"/CALM	144
	1980	Doc Bocas	Pemex	SBM	250,000	2-24" & 1-16"/CALM	93
	1981	Cayo Arcas	Pemex	SBM	250,000	2-20" & 1-16"/CALM	151
	1981	Dos Bocas	Pemex	SBM	250,000	2-24" & 1-16"/CALM	93
	1981	Salina Cruz	Pemex	Mitsubishi	250,000	2-24" & 1-16"/CALM	NA
	1981	Cayo Arcas	Pemex	EMH	285,000	2-20"/RMD	131
	1981	NA	Pemex	SOFEC	2,000	SBBM (21)	150
	1985	Unknown	Pemex	Mitsubishi	150,000	CALM	93
Morocco	1971	Mohammedia	RAPC	IMODCO	100,000	1-8" & 1-20"/CALM	72
New Caledonia	1977	Noumea	Le Nickel	SBM	100,000	1-20"/CALM	62
New Zealand	1971	Waipipi Point	Marcona Corp.	IMODCO	75,000	1-12"/CALM	64
	1972	Taharoa	New Zealand Steel	IMODCO	70,000	2-12"/CALM	77
	1976	Taharoa	New Zealand Steel	SBM	150,000	2-12"/CALM	105
Nigeria	1967	Lagos	Nidogas	IMODCO	2,000	1-3" & 1-4"/CALM	13
	1968	Escravos	Gulf	IMODCO	100,000	2-16"/CALM	70
	1968	Forcados	Shell	SBM	210,000	1-20"/CALM	83
	1968	Forcados	Shell	SBM	210,000	-124"/CALM	83
	1971	Qua Iboe	Mobil	IMODCO	255,000	2-24"/CALM	90
	1971	Forcados	Shell	SBM	313,000	1-24"/CALM	91
	1971	Bonny	Shell	SBM	313,000	1-24"/CALM	91
	1971	Bonny	Shell	SBM	313,000	1-24"/CALM	91
	1972	Brass River	Agip	IMODCO	200,000	2-20"/CALM	96
	1974	North Apoi	Texaco	SBM	50,000	2-20" & 1-12"/CALM	87
	1974	North Apoi	Texaco	SBM	250,000	2-20"/CALM	93
	1976	Brass River	Agip	IMODCO	250,000	2-20"/CALM	95
	1977	North Apoi	Texaco	SBM	250,000	2-24"/CALM	94
	1977	Escravos	Gulf	SBM	300,000	2-24"/CALM	102
	1979	Qua Iboe	Mobil	IMODCO	300,000	2-24"/CALM	95
	1984	OPL 98 Block	Ashland	SBM	285,000	S-Y Jacket	140
	1985	Bonny	Shell	Bluewater	350,000	CALM	92
North Yemen	1986	Salif	YEPCO	SOFEC	NA	Turrent moored FSO	NA
Norway	1970	Ekofisk	Phillips	SBM	60,000	1-12"/CALM	232
	1970	Ekofisk	Phillips	SBM	150,000	1-12"/CALM	208
	1976	Statfjord	Mobil	CFEM	125,000	2-20"/AC	NA
	1979	Statfjord B	Mobil	SBM	150,000	1-20"/ALP	480

ingle point mooring around the world—*continued*

ountry	Year	Port/Field	Owner	Designer/ Contractor	Max. Vessel Size (Dwt)	Hose number- Size/System	Water Depth (Ft.)
	1982	Dar Es Salaam	T.H.A	IMODCO	300,000	CALM	
hailand	1979	Gulf of Thailand	Union	Bluewater	70,000	1-8"/CALM Yoke	NA
	1981	Erawan	Union	Bluewater	85,000	1-8"/CALM	219
rinidad	1971	Galeota Point	Amoco	SBM	250,000	2-20"/CALM	95
	1973	Point-A-Pierre	Texaco	IMODCO	260,000	1-12" & 2-24"/CALM	78
	1976	Galeota Point	Amoco	IMODCO	250,000	2-20"/CALM	95
unisia	1972	Ashtart	Aquitaine	SBM	70,000	SBS	220
	1974	Ashtart	Aquitaine	SBM	100,000	1-20"/CALM	220
	1978	Ashtart	Serept	SBM	137,000	1-20" & 1-10"/SBS	220
	1982	Tazerka	Shell/Tunirex	SBM	210,000	SALS	470
nited Arab mirates	1968	Fateh	Conoco	SBM	150,000	2-16"/CALM	103
	1972	Das Island	BP	IMODCO	300,000	2-24" & 1-16"/CALM	94
	1972	Fateh	Dubai Petroleum	McDermott	300,000	2-24"	NA
	1972	Mubarras Island	ADOC	SBM	200,000	1-24"/CALM	58
	1973	Mubarek	Crescent	SBM	350,000	2-20" & 1-16"/CALM	160
	1974	Abu-Al-Bu-Koosh	Total/ABK	SBM	100,000	2-12"/CALM	97
	1977	Das Island	ADMA	IMODCO	400,000	2-24" & 1-16"/CALM	94
	1977	Arzanah	Amerada Hess	SBM	252,000	1-12"/CALM	107
	1979	Fateh	Dupetco	IMODCO	120,000	2-20"/CALM	130
	1980	Zirku	Zadco	IMODCO	350,000	2-20" & 1-20"/CALM	95
	1980	Zakum Zirku	Zadco	IMODCO	350,000	2-20" & 1-20"/CALM	95
	1981	Sharjah	Amoco	SBM	300,000	1-20"/CALM	65
	1981	Abu-Al-Koosh	Total	EMH	232,799	1-10"	NA
	1983	Salah	Gulf Ras al Khaimah	IMODCO	300,000	CALM	100
United Kingdom	1965	Nore Estuary	BP	BP/Harland Wolff	100,000	NA	NA
	1970	Humber River	Conoco	SBM	210,000	1-24"/CALM	74
	1972	Auk	Shell/Esso	Shell/SBM	42,000	1-10"/ELSBM	280
	1973	Argyll	Hamilton Bros.	SBM	100,000	1-12"/CALM	252
	1975	Brent	Shell/Esso	Shell/HC	90,000	NA	NA
	1975	Anglesey	Shell	SBM	750,000	2-24" & 1-16"/CALM	127
	1975	Scapa Flow	Occidental	Micoperi	250,000	NA	NA
	1975	Scapa Flow	Occidental	Micoperi	250,000	NA	NA
	1975	Thistle	BNOC	SBM	80,000	2-16"/SALM	535
	1977	Brent	Shell	SBM	80,000	1-16"/CALM	460
	1978	Buchan	BP	IMODCO	107,000	1-12"/CALM	369
	1979	Ninian	Chevron	IMODCO	3,500	SBBM	433
	1980	Ninian	Chevron	IMODCO	3,500	SBBM(4)	433
	1982	Maureen	Phillips	EMH	85,000	1-16"/AC	NA
	1980	Humber River	Conoco	SBM	280,000	1-24"/CALM	74
	1982	Beryl B	Mobil	EMH	80,000	1-16"/ALP	NA
	1984	Cardigan Bay	M.O.D.	Havron	10,000	SPLM	100
	1985	Fulmar	Shell	Bluewater	100,000	ALPRA/HEAD	360
	1985	Beryl A	Mobil	EMH	100,000	ALP	
United States	1967	Louisiana	Kerr-McGee	McDermott	8,000	1-4"	NA
	1978	Worldwide (portable)	US Navy	IMODCO	70,000	2-10"/CALM	65- 200
	1980	Louisiana	Loop	SOFEC	700,000	2-24"/SALM	110
	1980	Louisiana	Loop	SOFEC	700,000	2-24"/SALM	112
	1980	Louisiana	Loop	SOFEC	700,000	2-24"/SALM	114
	1981	Santa Ynez	Exxon	IMODCO	50,000	1-12", 1-8", 6-1" & 1-6"/SALM	494
	1986	Hawaii	PRI	SOFEC	150,000	CALM	NA
	1986	NAVSEA	US Navy	SOFEC	NA	Quick development SALM	NA
Uruguay	1975	Jose Ignacio	Ancap	SBM	150,000	2-24"/CALM	64
	1985	Jose Ignacio	Ancap	SBM	150,000	CALM	64
Venezuela	1968	Moron	CVP	SBM	100,000	2-16"/CALM	63
Viet Nam	1984	White Tiger	Sudoimport	SBM	35,000	S-Y CALM	
West Germany	1962	Cuxhaven	West Germany Navy	IMODCO	2,500	1-4"/CALM	26
Western Sahara	1961	El Aaiun	CEPSA	IMODCO	3,000	1-6"/CALM	28
Zaire	1975	Zaire	Gulf	IMODCO	100,000	2-16"/CALM	71
	1976	Zaire	Gulf	IMODCO	79,200	2016"/CALM	79

Single point mooring around the world—*continued*

Country	Year	Port/Field	Owner	Designer/ Contractor	Max. Vessel Size (Dwt)	Hose number- Size/System	Water Depth (Ft.)
	1982	Statfjord C	Mobil	SBM	150,000	1-20"/ALP	478
	1986	Gullfaks A	Statoil	SBM	125,000	Articulated tower/1 × 36 in	446
Oman	1963	Mina-al-Fahal	P.D. Oman	SBM	100,000	2-8"/CALM	71
	1966	Mina-al-Fahal	P.D. Oman	SBM	165,000	2-16" & 1-8"/CALM	115
	1966	Mina-al-Fahal	P.D. Oman	SBM	165,000	2-20" & 2-8"/CALM	124
	1973	Mina-al-Fahal	P.D. Oman	SBM	500,000	2-20" & 2-8"/CALM	155
	1979	Mina-al-Fahal	P.D. Oman	SBM	350,000	2-20" & 2-12"/CALM	124
	1984	Kuria Muria	Shell	SBM	250,000	CALM	125
Panama	1981	Chiriqui Grande	Petroterminal de Panama	EMH	150,000	2-20"/CALM	NA
	1981	Chiriqui Grande	Petroterminal de Panama	EMH	150,000	2-20"/CALM	NA
	1983	Chiriqui Grande	Petroterminal de Panama	EMH	150,000	2-20"/CALM	NA
Philippines	1967	Subic Bay	US Navy	IMODCO	108,000	2-16" & 1-10"/CALM	85
	1978	Nido	Cities Service	SBM	70,000	1-12"/CALM	200
	1980	Cadiao	Amoco	SBM	127,000	1-12"/CALM	300
	1980	Bataan	Bataan Refining	SOFEC	300,000	2-24"/SALM	94
	1982	Nido	Cities Service	Bluewater	55,000	2-10"/CALM	219
Qatar	1965	Halul	QGPC	SBM	100,000	2-16"/CALM	97
	1972	Halul	QGPC	McDermott	300,000	2-24"	NA
	1972	Umm Said	QGPC	IMODCO	300,000	1-20" & 1-24"/CALM	66
	1976	Doha	QGPC	SBM	65,000	1-6"/CALM	88
	1979	Halul	QGPC	SBM	540,000	2-20" & 1-10"/CALM	120
	1983	Umm Said	QGPC	IMODCO	500,000	CALM	NA
Saudi Arabia	1970	Zuluf	Aramco	SBM	250,000	2-24" & 1-16"/CALM	111
	1970	Zuluf	Aramco	SBM	450,000	2-24"/CALM	129
	1974	Ju'aymah	Aramco	McDermott	500,000	2-24" & 1-12"	NA
	1974	Ju'aymah	Aramco	McDermott	500,000	2-24" & 1-12"	NA
	1974	Ju'aymah	Aramco	McDermott	500,000	2-24" & 1-12"	NA
	1975	Ju'aymah	Aramco	SOFEC	750,000	2-24" & 1-12"/CALM	135
	1975	Ju'aymah	Aramco	SOFEC	750,000	2-24" & 1-12"/SALM	117
	1981	Ras Al Khafji	Aramco	Mitsubishi	300,000	1-24" & 1-10"/CALM	NA
Singapore	1971	Singapore Harbor	Esso	IMODCO	252,000	2-24"/CALM	88
	1974	Pulau Bukom	Shell	McDermott	300,000	2-24"	NA
	1980	Singapore Harbor	PSA	IMODCO	300,000	2-24"/CALM	105
South Africa	1969	Durban	Shell	SBM	210,000	2-20"/CALM	150
	1974	Durban	Shell	SBM	210,000	1-20"/CALM	150
South Korea	1963	Ulsan	KOC	IMODCO	75,000	2-12", 1-8" & 1-4"/CALM	65
	1969	Yosu	Honam Oil	IMODCO	100,000	2-16"/CALM	112
	1969	Ulsan	KOC	IMODCO	200,000	2-16" & 1-12"/CALM	88
	1977	Onsan	KIPCO	IMODCO	250,000	2-24"/CALM	90
	1980	Pusan	KOC	Mitsubishi	325,000	2-24" & 1-16"	NA
Spain	1966	Huelva	Rio Tinto	SBM	100,000	2-16"/CALM	75
	1971	Amposta	Shell	SBM	33,530	2-10"/CALM	209
	1973	Tarragona	Enpetrol	SBM	325,000	2-24" & 1-12"/CALM	135
	1975	Algeciras	Cepsa	DBV/Woodfield	500,000	2-20" & 1-12"	NA
	1976	Castellon	Shell	SBM	55,000	SALS	383
	1979	Badalona	Campsa	SOFEC	50,000	2-12"/SALM	107
Sri Lanka	1985		CPC	IMODCO	180,000	CALM	95
Sudan	1983	Marsa Nimeiri	Chevron	SBM	250,000	CALM (HEX)	160
Sweden	1959	Dalaro	Swedish Navy	IMODCO	3,000	1-4"/CALM	150
Taiwan	1967	Tai-Chung	US Air Force	IMODCO	50,000	1-12"/CALM	76
	1968	Kaohsiung	CPC	IMODCO	100,000	2-16" & 1-10"/CALM	68
	1968	Tai-Chung	US Air Force	IMODCO	50,000	1-12"/CALM	76
	1971	Kaohsiung	CPC	SBM	250,000	2-20"/CALM	100
	1972	Kaohsiung	CPC	SBM	250,000	2-20"/CALM	115
	1979	Chu-Wei	CPC	IMODCO	250,000	2-20"/CALM	121
	1981	Ta-Lin-Po	CPC	SBM	250,000	2-24" & 1-16"/CALM	130
Tanzania	1971	Dar-Es-Salaam	Tanzanian Harbour Authorities	SBM	100,000	2-20"/CALM	78

International Active Rig Count

Region	1979	1980	1981	1982	1983	1984 Land	1984 Off.	1984 Total	1985 Land	1985 Off.	1985 Total	1986 Land	1986 Off.	1986 Total
NORTH AMERICA														
Canada	339	401	263	200	201	245	14	259	302	9	311	174	4	178
United States*	2,176	2,910	3,969	3,117	2,229	2,158	271	2,429	1,722	254	1,976	847	123	970
Subtotal	**2,515**	**3,311**	**4,232**	**3,317**	**2,430**	**2,403**	**285**	**2,688**	**2,024**	**263**	**2,287**	**1,021**	**127**	**1,148**
LATIN AMERICA														
Argentina	63	76	70	67	73	82	0	82	81	0	81	47	0	47
Barbados	0	0	1	1	1	1	0	1	1	0	1	1	0	1
Bolivia	6	4	11	11	8	6	0	6	5	0	5	4	0	4
Brazil	60	72	81	94	83	44	26	70	46	30	76	46	31	77
Chile	6	7	7	7	6	3	3	6	3	3	6	3	3	6
Colombia	15	14	22	23	18	16	0	16	21	0	21	17	0	17
Costa Rica	0	0	0	0	1	1	0	1	0	0	0	0	0	0
Ecuador	3	3	4	6	5	4	0	4	2	0	2	3	0	3
Guatemala	1	4	6	5	2	1	0	1	0	0	0	0	0	0
Mexico	205	215	218	202	187	166	30	196	163	33	196	132	31	163
Paraguay	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Peru	20	21	24	23	16	10	7	17	8	4	12	9	4	13
Trinidad	14	13	14	13	10	6	3	9	7	3	10	7	4	11
Uruguay	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Venezuela	47	52	63	69	41	21	9	30	23	10	33	16	13	29
Subtotal	**440**	**481**	**521**	**522**	**451**	**361**	**78**	**439**	**360**	**83**	**443**	**285**	**86**	**371**
FAR EAST														
Bangladesh	2	3	5	5	2	4	0	4	5	0	5	5	0	5
Brunei	8	8	7	10	10	2	7	9	1	6	7	1	4	5
Burma	22	26	30	32	36	32	1	33	32	1	33	32	1	33
China-offshore	8	12	9	10	10	—	9	9	0	14	14	0	7	7
India	40	43	44	50	56	40	17	57	47	15	62	55	15	70
Indonesia	66	77	86	92	88	56	26	82	56	24	80	42	20	62
Japan	15	16	16	22	20	15	3	18	12	4	16	12	3	15
Korea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malaysia	13	12	12	13	10	0	9	9	0	8	8	0	8	8
North Korea	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Pakistan	13	14	15	17	17	17	0	17	18	0	18	17	0	17
Philippines	15	12	13	14	8	3	0	3	2	0	2	1	0	1
Taiwan	10	12	11	4	5	5	1	6	5	2	7	5	2	7
Thailand	2	5	7	8	13	5	6	11	4	5	9	3	1	4
Viet Nam	2	1	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	**217**	**242**	**255**	**277**	**275**	**179**	**79**	**258**	**182**	**79**	**261**	**173**	**61**	**234**
AFRICA														
Algeria	109	111	91	81	54	27	0	27	35	0	35	41	0	41
Angola	6	5	5	11	12	2	5	7	3	8	11	0	7	7
Benin	0	0	0	0	0	0	1	1	0	1	1	0	0	0
Cameroon	4	6	7	7	5	0	4	4	0	2	2	0	1	1
Chad	1	1	1	1	0	0	0	0	1	0	1	1	0	1
Congo	1	4	7	6	4	0	3	3	0	3	3	0	2	2
Gabon	6	8	13	12	7	0	6	6	1	6	7	1	2	3
Guinea Republic	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Ivory Coast	3	3	5	5	2	0	2	2	0	1	1	0	0	0
Liberia	0	0	0	0	0	0	0	0	0	1	1	0	0	0
Libya	33	41	33	31	24	24	2	26	28	2	30	20	0	20
Madagascar	0	0	0	0	0	0	0	0	1	0	1	1	0	1
Morocco	3	2	5	5	6	4	0	4	2	1	3	3	0	3
Niger	5	5	5	3	0	0	0	0	0	0	0	0	0	0
Nigeria	18	20	23	27	17	5	6	11	8	2	10	7	3	10
Senegal	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Sierra Leone	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Somalia	0	0	0	0	0	1	0	1	1	1	2	0	0	0
South Africa	2	2	2	2	2	0	2	2	1	2	3	0	3	3
Sudan	2	2	3	2	4	2	0	2	1	0	1	1	0	1
Tanzania	0	0	0	0	1	1	0	1	0	0	0	0	0	0
Tunisia	7	8	11	11	7	5	1	6	3	1	4	2	1	3
Zaire	1	1	2	2	2	1	1	2	2	0	2	1	0	1
Subtotal	**201**	**219**	**213**	**209**	**147**	**72**	**33**	**105**	**87**	**31**	**118**	**78**	**19**	**97**
EUROPE														
Austria	10	8	9	9	9	7	0	7	7	0	7	6	0	6
Belgium	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Denmark	0	3	2	2	5	0	3	3	1	3	4	0	3	3
France	11	13	21	22	17	19	1	20	22	0	22	15	0	15
Germany, Fed. Rep.	21	22	26	31	25	19	0	19	20	0	20	19	0	19
Greece	2	3	6	5	3	3	1	4	1	0	1	0	0	0
Holland	17	17	17	21	17	7	11	18	7	17	24	4	11	15

International Active Rig Count

Region	1979	1980	1981	1982	1983	1984 Land	1984 Off.	1984 Total	1985 Land	1985 Off.	1985 Total	1986 Land	1986 Off.	1986 Total
Ireland	2	1	0	0	1	1	1	2	0	2	2	0	1	1
Italy	21	19	32	38	26	20	6	26	31	9	40	24	9	33
Norway	7	11	12	13	10	0	10	10	0	13	13	0	12	12
Portugal	0	0	1	1	1	0	0	0	0	0	0	0	0	0
Spain	5	10	11	12	8	5	4	9	6	4	10	4	3	7
Switzerland	0	1	1	1	0	0	0	0	0	0	0	0	0	0
United Kingdom	34	48	58	58	42	6	54	60	7	56	63	7	36	43
Yugoslavia	22	22	22	24	21	23	2	25	25	2	27	27	3	30
Subtotal	**152**	**179**	**218**	**237**	**185**	**110**	**93**	**203**	**127**	**106**	**233**	**106**	**78**	**184**
MIDDLE EAST														
Abu Dhabi	20	23	31	41	35	9	20	29	9	12	21	8	7	15
Bahrain	1	1	1	1	1	0	0	0	1	0	1	1	0	1
Dubai	1	3	2	3	7	4	3	7	1	4	5	1	2	3
Egypt	21	26	27	36	35	15	21	36	16	21	37	17	16	33
Iran	8	0	0	3	13	18	2	20	18	2	20	16	2	18
Iraq	32	39	14	11	23	19	0	19	28	0	28	21	0	21
Jordan	0	0	0	0	3	3	0	3	2	0	2	2	0	2
Kuwait	2	3	3	4	5	4	1	5	6	0	6	6	0	6
North Yemen	0	0	0	0	0	0	0	0	1	0	1	4	0	4
Oman	7	8	10	12	11	12	0	12	13	0	13	12	1	13
Qatar	6	8	7	5	3	1	1	2	1	2	3	1	0	1
Ra's al Khaymah	0	1	1	2	1	0	0	0	0	0	0	0	0	0
Saudi Arabia	22	25	29	29	26	10	6	16	6	5	11	5	1	6
Sharjah	0	1	2	3	1	0	0	0	0	0	0	0	0	0
South Yemen	0	0	0	0	0	1	0	1	2	0	2	1	0	1
Syria	15	15	16	15	15	23	0	23	26	0	26	27	0	27
Turkey	9	24	26	34	26	24	0	24	25	0	25	27	0	27
Umm al Qawain	0	0	1	1	1	0	0	0	0	0	0	0	0	0
Subtotal	**144**	**177**	**170**	**200**	**206**	**143**	**54**	**197**	**155**	**46**	**201**	**149**	**29**	**178**
SOUTH PACIFIC														
Australia	11	15	23	33	25	24	10	34	22	9	31	9	6	15
New Zealand	2	2	3	1	2	1	1	2	3	1	4	3	1	4
Papua New Guinea	0	1	0	0	1	1	0	1	2	0	2	1	0	1
Subtotal	**13**	**18**	**26**	**34**	**28**	**26**	**11**	**37**	**27**	**10**	**37**	**13**	**7**	**20**
Total	**3,682**	**4,627**	**5,635**	**4,796**	**3,722**	**3,294**	**633**	**3,927**	**2,962**	**618**	**3,580**	**1,825**	**407**	**2,232**

* U.S. offshore includes inland water rigs: 58 in 1984, 48 in 1985, and 23 in 1986. Source: Hughes Tool Company

International seismic crew count

	1981 Land	1981 Marine	1981 Total	1982 Land	1982 Marine	1982 Total	1983 Land	1983 Marine	1983 Total
				(Average crews operating)					
United States	644	45	689	512	57	569	430	49	479
Canada	66	5	71	63	5	68	72	7	79
Mexico	29	3	32	29	1	30	28	1	29
Central & South America	91	8	99	98	7	105	81	5	86
Europe	66	29	95	69	31	100	71	26	97
Middle East	45	4	49	43	3	46	33	1	34
Africa	82	7	89	70	6	76	60	10	70
Far East	79	13	92	103	16	119	95	15	110
Total	**1,102**	**114**	**1,216**	**987**	**126**	**1,113**	**870**	**114**	**984**

	1984 Land	1984 Marine	1984 Total	1985 Land	1985 Marine	1985 Total	1986* Land	1986* Marine	1986* Total
				(Average crews operating)					
United States	441	47	488	319	45	364	187	23	210
Canada	82	5	87	86	4	90	61	1	62
Mexico	32	0	32	32	0	32	32	0	32
Central & South America	79	9	88	64	8	72	52	6	58
Europe	81	35	116	78	35	113	70	30	100
Middle East	36	2	38	40	2	42	32	4	36
Africa	53	6	59	55	6	61	50	5	55
Far East	85	12	97	92	9	101	74	11	85
Total	**889**	**116**	**1,005**	**766**	**109**	**875**	**558**	**80**	**638**

*First half.

Source: Society of Exploration Geophysicists

Gas production (billions cu ft)

	1986
WESTERN HEMISPHERE	
Argentina	661.8
Bolivia	101.8
Brazil	200.4
Canada	3,168.3
Chile	226.3
Colombia	182.4
Ecuador	2.6
Guatemala	0.8
Mexico	1,252.3
Peru	44.9
Trinidad	125.2
United States	16,688.0
Venezuela	615.1
Total	**23,269.9**
EUROPE	
Austria	39.2
Denmark	62.0
France	151.8
Germany, Fed. Rep.	545.4
Greece	1.8
Italy	527.3
Netherlands	2,623.3
Norway	906.2
Spain	12.5
Turkey	16.1
United Kingdom	1,634.0
Total	**6,519.6**
MIDDLE EAST	
Bahrain	215.7
Iran	489.3
Iraq	21.0
Israel	2.4
Kuwait	144.4
Oman	48.2
Qatar	206.2
Saudi Arabia	328.7
Syria	4.8
United Arab Emirates	362.1
Total	**1,822.8**
ASIA-PACIFIC	
Afghanistan	102.0
Australia	524.1
Brunei	274.8
Burma	23.8
India	217.9
Indonesia	1,155.9
Japan	73.2
Malaysia	218.8
New Zealand	191.7
Pakistan	390.3
Taiwan	34.6
Thailand	113.8
Total	**3,320.9**
AFRICA	
Algeria	1,233.3
Angola	6.6
Congo	1.2
Egypt	157.5
Gabon	2.4
Ivory Coast	—
Libya	165.6
Morocco	2.6
Nigeria	72.2
Tunisia	15.4
Total	**1,661.8**
COMMUNIST	
China	646.0
Romania	1,210.2
USSR	24,215.8
Other	1,016.2
Total	**27,088.2**
WORLD TOTAL	**63,683.2**

World well completions—1985*

North America	**Total wells**	**Pro-ducers**	**Wild-cats**	**Pro-ducers**
U.S.	83,609	57,523	13,832	3,730
Canada	12,564	9,719	3,404	1,907
Latin America				
Argentina	1,024	819	161	44
Barbados	22	21	5	4
Belize	3	0	3	0
Bolivia	19	14	11	6
Brazil	1,074	728	229	69
Chile	83	57	13	4
Colombia	156	114	67	29
Ecuador	22	21	2	2
Guatemala	4	1	4	1
Mexico	297	190	78	19
Peru	160	—	13	0
Suriname	12	4	8	0
Trinidad-Tobago	197	183	14	6
Venezuela	361	214	6	0
North Africa				
Algeria	—	—	25	—
Egypt	184	112	76	27
Libya		—	45	5
Morocco	8	—	6	1
Sudan	6	—	6	0
Tunisia	22	7	15	0
Other Africa				
Angola	55	—	20	11
Cameroon	32	—	9	3
Chad	4	0	4	0
Congo	9	5	9	5
Ivory Coast	4	—	3	0
Eq. Guinea	2	—	1	0
Gabon	46	—	13	6
Ghana	3		2	
Kenya	1	0	1	0
Liberia	3	0	3	0
Madagascar	5	0	5	0
Mali	1	0	1	0
Nigeria	62	—	17	7
Sierra Leone	1	0	1	0
Somalia	4	0	2	0
South Africa	17	9	16	9
Tanzania	3	0	3	0
Zaire	37	—	1	0
Far East				
Bangladesh	2	—	0	—
Brunei	38	—	9	—
Burma	209	—	9	—
India	217	—	89	—
Indonesia	658	—	208	—
Japan	27	—	16	—
Korea	2	—	2	—
Malaysia	61	—	25	—
Pakistan	76	—	26	—
China	5,555	—	40	—
Philippines	—	—	—	—
Taiwan	14	—	12	—
Thailand	92	—	28	—
Europe				
Austria	58	38	23	12
Denmark	4	0	4	0
F. R. Germany	69	51	42	27
France	172	105	49	10
Greece	7	2	5	0
Ireland	6	1	6	1
Italy	142	83	73	33
Malta	1	0	1	0
Netherlands	48	42	13	7
North Sea				
U.K.	285	166	159	63
Norway	80	56	43	29
Holland	75	44	39	12
Denmark	20	10	11	1
Germany	2	0	2	0
Portugal	1	0	1	0
Spain	31	15	21	6
Sweden	17	1	16	0
U.K.	51	26	28	4
Yugoslavia	210	124	80	31
Oceania				
Australia	359	—	267	—
New Zealand	25	—	25	—
Papua New Guinea	5	0	5	0

* AAPG data

Index of cost of drilling and equipping wells

(1984 = 100, unadjusted for depth or geographical distribution)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985*	1985†
Payments to drilling contractors	29.8	30.9	34.8	37.9	49.3	56.6	64.6	77.4	86.1	111.5	128.5	157.0	163.6	114.3	100.0	101.0	101.0
Purchased items																	
Road & site preparation	35.3	37.9	40.5	43.0	46.1	51.1	55.0	59.3	64.8	71.8	80.4	86.5	90.9	96.7	100.0	102.0	102.0
Transportation	44.6	47.5	48.8	50.2	55.8	60.7	64.5	69.0	72.1	79.8	90.4	99.0	100.0	100.0	100.0	100.0	100.0
Fuel	13.3	13.7	13.9	15.8	27.7	33.7	38.4	44.6	46.0	62.9	93.9	114.3	111.6	101.8	100.0	95.3	93.4
Drilling mud and additives	36.1	39.0	39.1	43.8	51.9	66.3	74.5	78.5	93.1	102.8	120.4	136.6	141.0	107.5	100.0	101.2	80.0
Mud logging, coring, and monitoring system	28.9	29.2	29.2	29.2	33.3	39.2	42.2	45.4	51.5	60.4	72.4	97.4	100.0	100.0	100.0	100.0	95.0
All other physical tests	33.9	36.7	36.7	38.2	43.3	52.0	58.6	64.3	70.8	81.1	91.4	94.9	100.0	100.0	100.0	100.0	100.0
Logs & wireline evaluation services	27.0	29.4	29.4	30.4	33.9	40.0	46.8	51.8	66.0	75.0	82.3	95.8	100.1	95.6	100.0	89.9	89.9
Directional drilling services	32.7	35.6	36.4	37.8	43.1	46.0	50.2	54.5	61.0	69.9	79.9	84.0	100.0	101.6	100.0	98.8	90.0
Perforate	32.4	33.6	33.7	33.7	37.5	44.3	49.1	53.6	58.1	65.0	78.2	91.5	100.0	100.0	100.0	100.0	100.0
Formation treating	45.8	48.8	49.0	50.5	54.0	68.4	74.2	77.8	83.3	90.4	109.2	128.0	118.8	105.9	100.0	94.1	90.0
Cement and cementing services	38.7	43.2	43.9	45.9	49.9	62.2	66.7	68.4	76.0	82.3	96.1	112.0	114.1	107.4	100.0	94.5	90.0
Casing and tubing	26.0	30.9	35.0	34.9	47.4	52.7	57.1	62.9	69.8	73.9	84.8	109.6	117.1	105.2	100.0	98.8	92.5
Casing hardware	26.0	30.9	35.0	34.9	47.4	52.7	57.1	62.9	69.8	73.9	84.8	109.6	117.1	105.2	100.0	98.8	92.5
Special tool rentals	39.1	40.1	40.1	40.7	45.3	52.1	57.6	63.1	69.4	76.9	83.2	93.4	103.3	103.3	100.0	100.0	95.0
Drill bits and reamers	29.9	30.3	32.1	32.8	37.4	46.5	50.3	55.4	62.0	68.2	77.8	89.0	92.6	99.9	100.0	100.4	95.0
Wellhead equipment	24.9	25.3	25.7	27.2	31.8	38.3	45.0	52.6	58.9	68.1	82.9	100.2	112.7	107.2	100.0	103.8	90.0
Miscellaneous equipment and supplies	27.8	28.8	30.0	31.4	37.2	46.3	51.3	55.7	61.6	68.2	79.1	94.4	103.6	100.9	100.0	100.3	100.3
Plugging	35.4	39.8	42.6	44.4	47.7	54.8	58.1	61.0	67.0	72.1	79.8	91.8	97.9	98.5	100.0	98.1	98.1
Supervision and overhead	33.4	35.1	37.1	39.6	45.1	50.0	53.8	58.3	65.7	72.4	80.3	89.1	96.5	100.3	100.0	103.3	102.9
Other expenditures	34.2	35.4	36.6	39.1	47.7	53.2	56.5	60.5	65.0	73.3	85.2	94.3	96.9	97.9	100.0	100.4	100.4

Preliminary.** **†Judgment index

Source: Independent Petroleum Association of America

Drilling depth records in U.S.

State, area	Well	Location	County	Year	depth	Total Result	Type
Oklahoma	Lone Star 1 Rogers	27-10n-19w	Washita	1974	31,441	Granite Wash gas	Wildcat
Texas	Hunt Energy 1 Cerf Ranch	9-130-T&STL	Pecos	1982	29,670	Dry	Wildcat
Wyoming	Rainbow Resources 1 Pacific Creek-Federal	34-27n-103w	Sublette	1979	25,764	Dry	Wildcat
S. Louisiana	Martin Exploration 1 Echart	40-4s-4e	St. Landry	1981	25,703	Dry	Wildcat
Mississippi	FMP Operating 1 Wilson Estate	19-6n-2w	Adams	1986	25,500	Dry	LaGrange
N. Louisiana	Sohio Petroleum 1 L.W. Magoun	23-7n-7e	Concordia	1985	25,015	Dry	Wildcat
Ala. offshore	Mobil Oil 1 OCS-G-3886	Pensacola area	Off Baldwin	1981	23,264	Dry	Wildcat
California	Tenneco 64-X-34 Sandhills	34-32s-28e	Kern	1975	22,711	Dry	Wildcat
Colorado	Celsius Energy 1 Powder Wash	29-12n-97w	Moffat	1986	22,092	Testing	Deep test
Mass.-off.	USGS G-2 COST	Block 141	Georges Bank	1977	21,874	Dry	Strat
Utah	Texaco 1 Thousand Peaks Ranching	12-1n-8e	Summit	1981	21,874	Dry	Wildcat
Pennsylvania	Amoco Production 1 Svetz	Kingwood quad.	Somerset	1974	21,460	Dry	Wildcat
Alabama	Damson Oil 1 Tyler-Odom	13-3n-4w	Washington	1971	20,434	Dry	Wildcat
Alaska	Husky Oil/USGS 1 Tunalik	20-10n-36w	Wainwright quad.	1981	20,334	Dry	Wildcat
West Virginia	Exxon 1 Gainer-Lee	Arnoldsburg quad.	Calhoun	1974	20,222	Dry	Wildcat
Nevada	Mobil Oil 1-A Virgin River-USA	9-15s-58e	Clark	1980	19,562	Dry	Wildcat
Florida	Bass Enterprises 12-2 Collier	12-52s-27e	Collier	1975	18,670	Dry	Wildcat
N.J. offshore	Gulf Oil 1 OCS-A-0059	Block 857	Baltimore Canyon	1979	18,554	Dry	Wildcat
Idaho	Exxon 1 Myers-Federal Unit	14-14n-35e	Clark	1982	18,540	Dry	Wildcat
Calif. offshore	Texaco 3 OCS-P-0234	Santa Cruz area	Pitas Point	1977	18,318	Dry	Wildcat
Arizona	Phillips Petroleum 1-A State	2-7s-1e	Pinal	1981	18,013	Dry	Wildcat
Montana	ARCO Exploration 1 Gibbs	2-28n-27w	Flathead	1984	17,774	Dry	Wildcat
Washington	Shell Oil 1-9 BN	9-15n-25e	Grant	1983	17,518	Dry	Wildcat
Michigan	McClure Oil 1-8 Sparks	8-10n-2w	Gratiot	1978	17,466	Dry	Wildcat
Arkansas	MRT/Harvey Broyles 1 Douglass	27-12n-26w	Hempstead	1979	17,349	Dry	Wildcat
Virginia	Gulf Oil 1 Price	Hansonville quad.	Russell	1976	17,003	Dry	Wildcat
North Dakota	Gulf Oil 1-3-4A Zabolotny	3-144n-98w	Billings	1978	15,380	Miss. oil & gas	Little Knife
Kentucky	Exxon 1 Duncan	5-M-22	Webster	1977	15,200	Dry	Wildcat
Illinois	Texas Pacific 1 Streich Comm.	2-11s-6e	Pope	1976	14,942	Dry	Wildcat
New York	New York State Natural Gas 1 Olin	Woodhull quad.	Steuben	1958	13,500	Gas	...
Wash.-off.	Shell Oil 1A ET OCS-P-0150	Cape Flattery area	Off Pacific	1966	13,179	Dry	Wildcat
Oregon	Mobil Oil 1 Sutherlin Unit	36-24s-5w	Douglas	1979	13,177	Dry	Wildcat
Oregon-off.	Standard Oil (Calif.) 1 OCS—P-0103	Newport area	...	1965	12,628	Dry	Wildcat
Maryland	Texas Eastern 2 Bowman Siebert	Accident quad.	Garrett	1973	11,617	Gas storage	...
Tennessee	ARCO Exploration 1 Sanford Heirs	21-4s-64e	Anderson	1982	11,540	Dry	Wildcat
Georgia	Chevron 1 Snipes	Snipesville area	Jeff Davis	1981	11,470	Dry	Wildcat
Ohio	Amerada Petroleum 1 Ullman	Dalzel quad.	Noble	1967	11,442	Shallow oil, gas	...
Kansas	Texaco 1 Noel Poersch	31-5s-5e	Washington	1984	11,300	Dry	Wildcat
N. Carolina	Standard Oil (N.J.) 1 Hatteras Light	...	Dare	1946	10,054	Dry	Wildcat
Nebraska	Chevron 1 Duncan-Compton	31-16n-58w	Kimball	1979	9,971	Dry	Wildcat
S. Dakota	Kenneth Luff-1-19 Dworshak	19-23n-6e	Harding	1977	9,771	Oil	...
Hawaii	Barnwell Geothermal 1 Lani Puna	Kapoha area	Hawaii	1981	8,350	Geothermal	...
Indiana	General Electric 2 Industrial	19-7s-37w	Posey	1971	7,980	Disposal	...
Minnesota	Longyear Drilling 1 Hattenburger	2-46n-21w	Carlton	1978	7,440	Dry	Wildcat
Vermont	Columbia Gas 1 Burnor	Fairfield area	Franklin	1984	6,970	Dry	Wildcat
New Jersey	Anchor Gas 1 Dickerson	Cape May quad.	Cape May	1964	6,407	Dry	Wildcat
S. Carolina	Essex Oil & Gas 1 Lightsey	5 mi w/Williams	Colleton	1984	6,000	Dry	Wildcat
Iowa	Iowa First Oil Development 1 Wilson	24-68n-37w	Page	1934	5,305	Dry	Wildcat
Missouri	Mammoth Oil 1 Big Oak Farm	7-24n-17e	Mississippi	1966	4,909	Dry	Wildcat
Wisconsin	Wisconsin Oil Refining 1 Jensema	Gibbsville area	Sheboygan	1949	4,405	Dry	Wildcat
Delaware	Cleveland Petroleum 1 Apple Orchard	...	Sussex	1935	3,012	Dry	Wildcat